THE REPORT

OF THE NOVA SCOTIA ROYAL COMMISSION ON

HEALTH CARE

Towards a New Strategy

Research Studies
Volume I

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The Complete Report of
The Nova Scotia Royal Commission on Health Care
consists of the following:

- **Summary of the Report**
- **Report of The Nova Scotia Royal Commission on Health Care: Towards a New Strategy**
- **Research Studies, Volumes I, II & III**

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Introduction

The research studies listed below were prepared for the Nova Scotia Royal Commission on Health Care.

Although written under the auspices of the Royal Commission, the views expressed are those of the authors and do not imply endorsement by the Commissioners.

Volume One

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	Health Status Indicators and Demographic Trends for Nova Scotia
	Fiscal Federalism from the Perspective of Nova Scotia

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INTER-PROVINCIAL COMPARISON OF HEALTH CARE EXPENDITURES

FINAL REPORT

Submitted to the
Nova Scotia Royal Commission
on Health Care

May 1989

Douglas E. Angus
Pran Manga
Kathryn Tregunna

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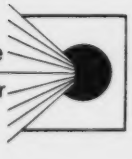
Institut pour l'établissement de santé de l'avenir



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* * *

I. INTRODUCTION

The report examines health care expenditures, prices, and utilization trends in selected Canadian provinces. In 1985, the latest available year of much of published data, health care expenditures in Canada amounted to some $40 billion or about 8.5% of the Gross National Product (GNP). For many provinces, health care expenditures represent one of the largest single expenditure items of public spending. It also is estimated that the health care sector is responsible for employing (directly and indirectly) 7 to 8 per cent of the employed labour force in Canada. For many communities, the health care services "industry" represents the largest employer.

Although Canada has had relative success in containing health care costs during the past few decades, there is still concern that health care expenditures have climbed substantially more quickly than overall economic growth. Much of this increase in health care costs has resulted from the particular "market" characteristics of the health care sector. In and of themselves, health care cost increases are really only of concern if increases in output (i.e., health status) have not kept pace with these cost increases. Yet, given that health care expenditures in Canada are publicly financed, and that the emerging changes in health care technology, demographics, and continuing fiscal constraint, governments quite naturally are concerned about their ability to continue to provide universal access to "necessary" services. Facing public policy makers are difficult financial and ethical questions related to reconciling needs and costs, to rationing of care, and to choices between therapy and death.

This document tries to provide an overview of the complex medical, social, and economic forces underlying health care financing and delivery in Nova Scotia and a few other selected provinces in Canada. With this in mind, the report is divided into section dealing with composition, patterns, size, and growth of health care expenditures, and population composition, utilization, and measuring effectiveness. Finally, there is an attempt to draw some conclusions and policy implications.

II. COMPOSITION, EXPENDITURE PATTERNS, SIZE, AND GROWTH OF THE HEALTH CARE SECTOR

In this section of the report, we examine the size, composition, and changes in health care expenditures for Canada as a whole, the four Atlantic provinces, Manitoba and Saskatchewan. First, the ratios of total health care expenditures to gross domestic product (GDP), as well as changes in real expenditures, are examined. Following this is a discussion of health care expenditures by major category of expenditure and by sector.

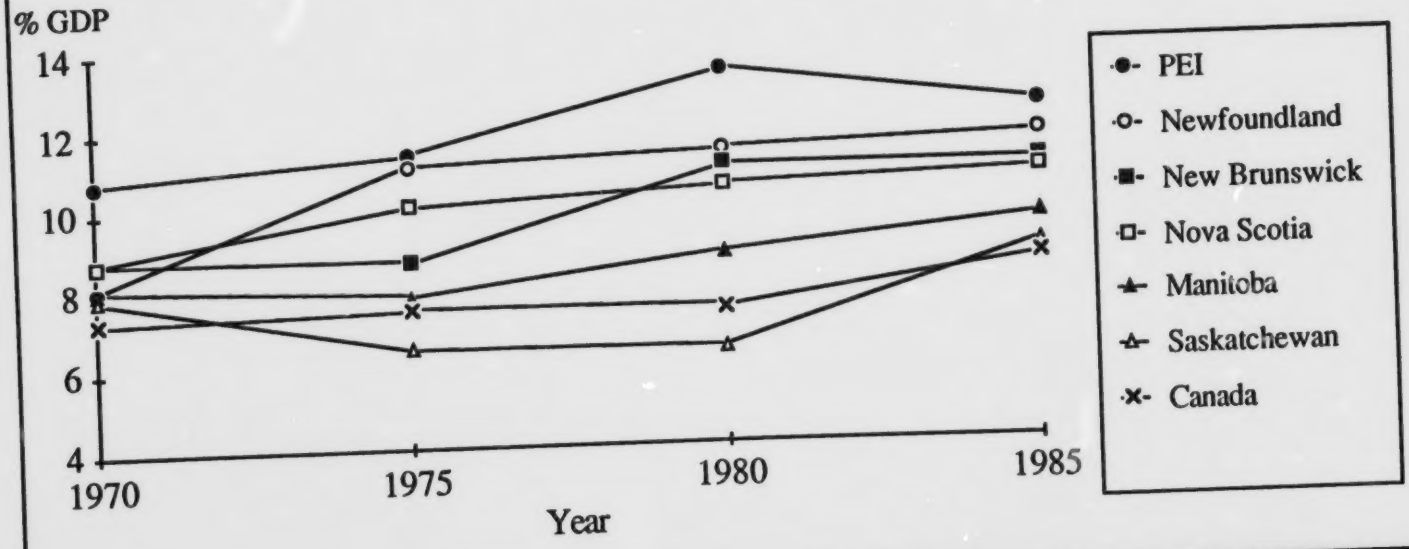
Health Care Expenditures and GDP

Appendix Table 1 and Chart 1 show the ratio of total health expenditures to GDP for 1970 to 1987. Provincial disaggregations for total health care costs are unavailable for 1986 and 1987. Overall in Canada, health spending has gone from $6.3 billion (7.3 per cent of GDP) in 1970 to $46.7 billion (8.8 per cent of GDP) in 1987. Throughout the 1970s and early 1980s, the share of national GDP spent on health care remained relatively stable. The rather sudden shift upwards between 1981 and 1982 relates primarily to the situation where GDP remained "flat" and health costs continued to increase at their previous rate of change. From 1985 to 1986, GDP increased at a rate less than the 10 per cent climb in health expenditures. Between 1986 and 1987, health care costs rose by 6 per cent compared to the increase of 8 to 9 per cent in GDP.

The behaviour of provincial health expenditures, as they relate to GDP, was different from that at the national level. While general stability was observed for Canada as a whole during the 1970s and early 1980s, health care expenditures in the Atlantic provinces as a percentage of GDP, climbed 2 to 3 percentage points. Since 1981, this ratio has remained relatively stable in each of the Atlantic provinces. By contrast, in Saskatchewan health care costs as a percentage of GDP actually decreased notably between 1970 and 1981; since then this ratio has climbed to a level comparable to that for Canada as a whole. Manitoba health care costs as a percentage of GDP behaved similarly to those for Canada as a whole.

Although constant-dollar series are not prepared for provincial health care expenditures, one can compare current and constant dollar increases at the national level. Chart 2 and Appendix Table 2 show per capita health expenditures in current and constant dollars for selected years. During the ten-year period 1975 to 1985, current dollar per capita health costs increased 191 per cent. Since the rise in constant dollar costs was only 44 per cent during that period, it appears that price changes accounted for a significant portion of the increase in health care expenditures. Cost increases were most significant between 1979 and 1982, a period of high price inflation in Canada: current dollar per capita costs climbed by 55 per cent compared to the constant dollar cost increase of 16 per cent.

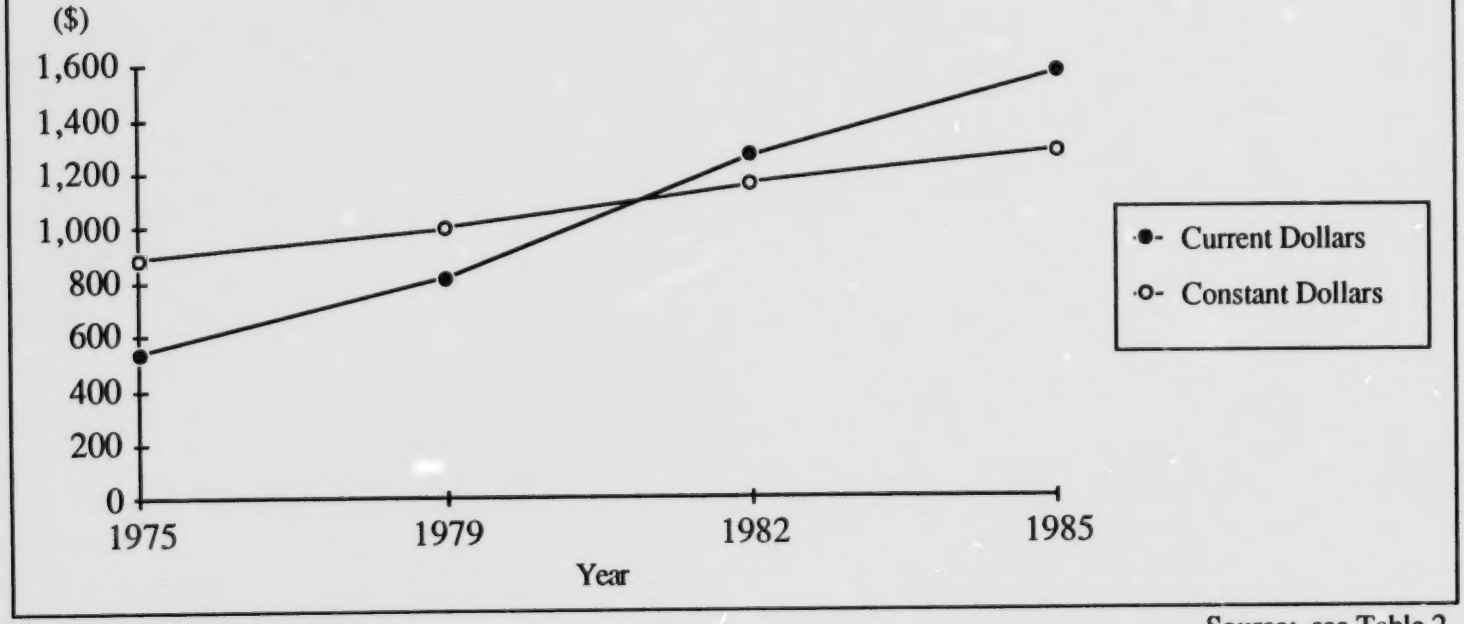
Chart 1
Total Health Expenditures
% Gross Domestic Product (GDP)
Atlantic Provinces, Saskatchewan, Manitoba and Canada, 1970-1985



Source: see Table 1

Note: Provisional data 1985.

Chart 2
Health Expenditures per Capita
Current Dollars and Constant Dollars
Canada, Selected Years 1975 - 1985



Note: Provisional data 1985.

Source: see Table 2

Absolute Levels of Health Expenditures

Noticeable differences with respect to absolute levels of health expenditures also exist among and between the six provinces under consideration. Chart 3 shows per capita health expenditures for selected years for Canada, the Atlantic provinces, Manitoba and Saskatchewan. During the period 1970 to 1985, Manitoba has always had the highest per capita health care costs (of the provinces being compared in this study), and except for the years 1979 to 1983, Nova Scotia usually maintained the third highest per capita health expenditures.

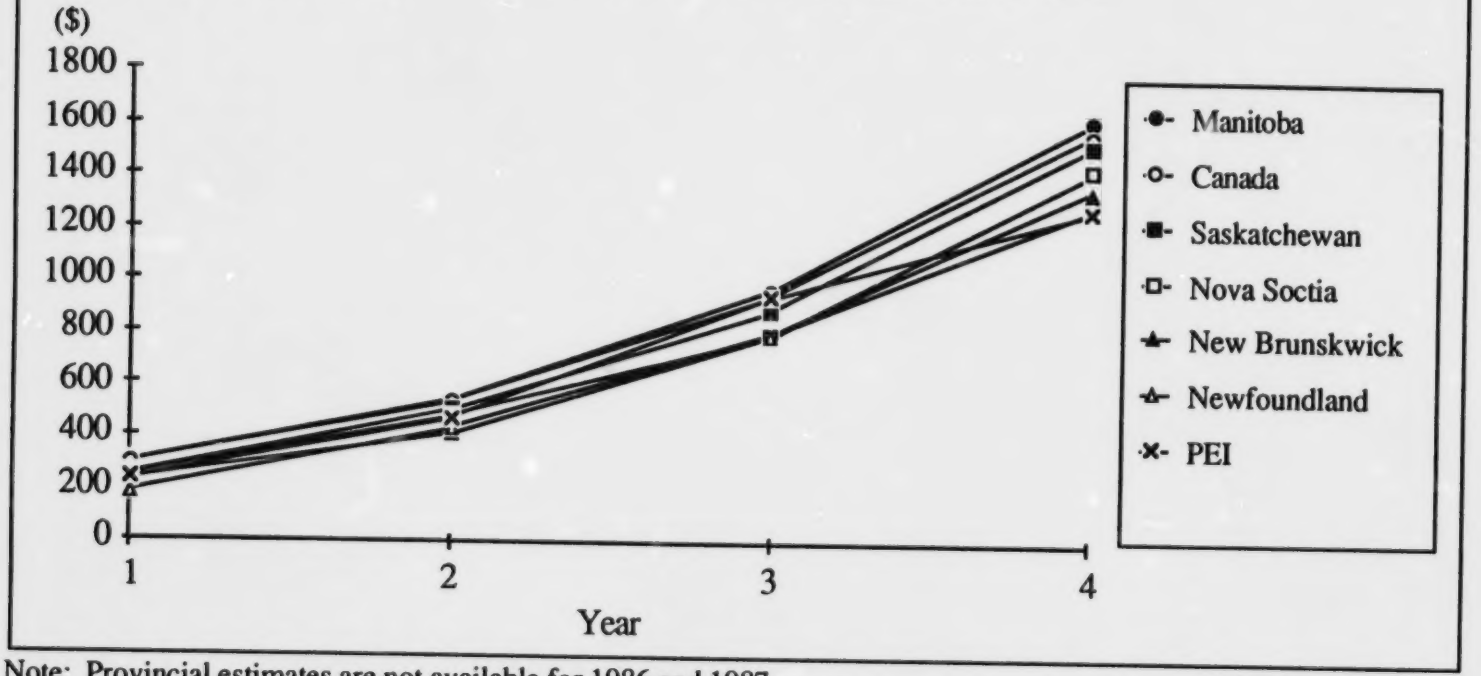
Unlike the situation in Manitoba, where per capita health expenses were higher than the Canadian average throughout most of 1970 to 1985, the average national per capita health expenditures exceeded each of the other five provincial averages. However, for each of the Atlantic provinces and Saskatchewan the gap is narrowing. From 1970 to 1985, health care costs per capita for Canada and Manitoba increased by 435 per cent and 439 percent, respectively; increases for the other provinces were 589 per cent for Newfoundland, 442 per cent for Prince Edward Island; 474 per cent for Nova Scotia, 491 per cent for New Brunswick, and 499 per cent for Saskatchewan (Chart 3). For 1985, per capita health care costs in Saskatchewan were 97 per cent of the Canada average, followed by Nova Scotia at 91 per cent, New Brunswick at 86 per cent, and Newfoundland and Prince Edward Island (both at 82 per cent). Manitoba per capita health expenditures were 103 percent of the Canada average.

Health Expenditures by Major Category and Sector

About three-quarters of Canada's health care costs are covered by public expenditures, primarily through federal-provincial cost sharing arrangements. Federal-provincial cost sharing is discussed in greater detail elsewhere (see Manga and Angus, "Fiscal Federalism From the Perspective of Nova Scotia").

Charts 4A-B and Appendix Table 4 show the distribution of health expenditures by sector for 1975 and 1985 for each of the provinces considered in this study. While still relatively high, public expenditures (federal, provincial, local, and Worker's Compensation Boards) have decreased in Atlantic Canada; the decrease has been more significant in Newfoundland and New Brunswick than in Nova Scotia and Prince Edward Island. There has been virtually no change in Manitoba. Saskatchewan, on the other hand, has shown a significant increase in public sector expenditures on health care between 1975 and 1985. Private health care expenditures, as a proportion of the total, in 1985 ranged from 20 per cent to 25 per cent in these six provinces,

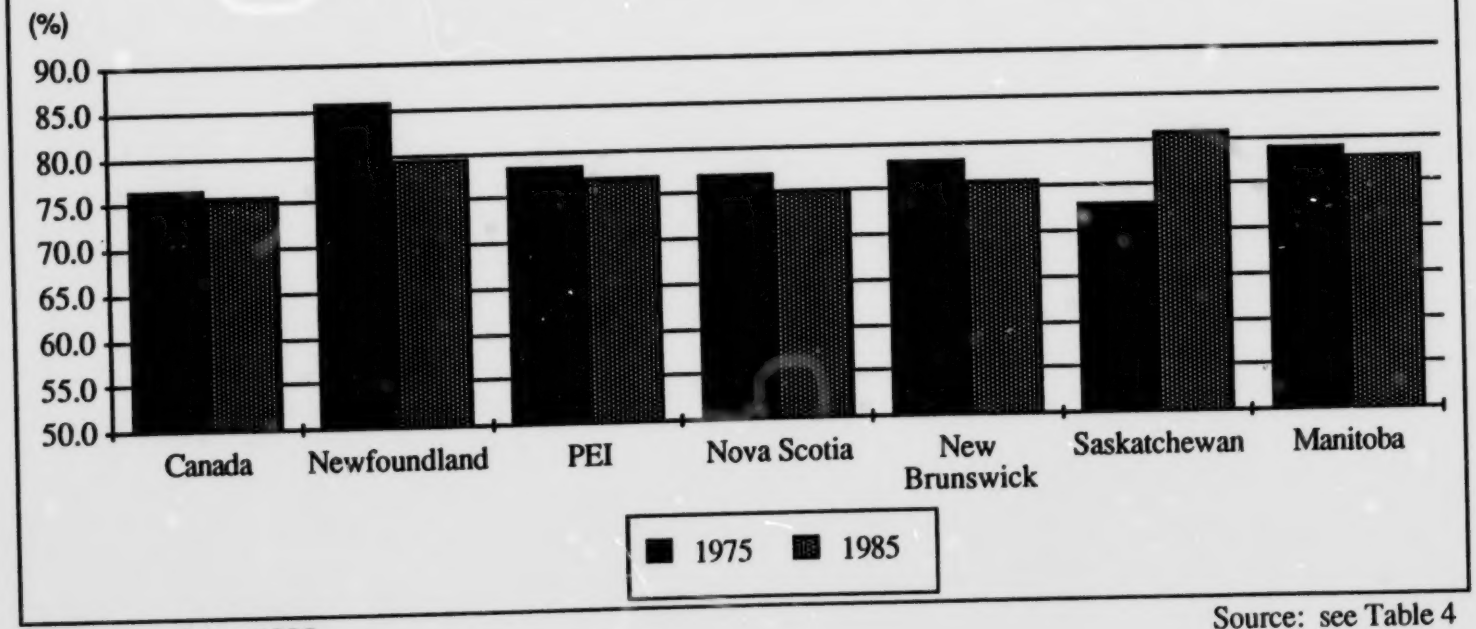
Chart 3
Per Capita Health Expenditures
Atlantic Provinces, Saskatchewan, Manitoba and Canada, 1970-1985



Note: Provincial estimates are not available for 1986 and 1987.
Provisional data 1985.

Source: see Table 1

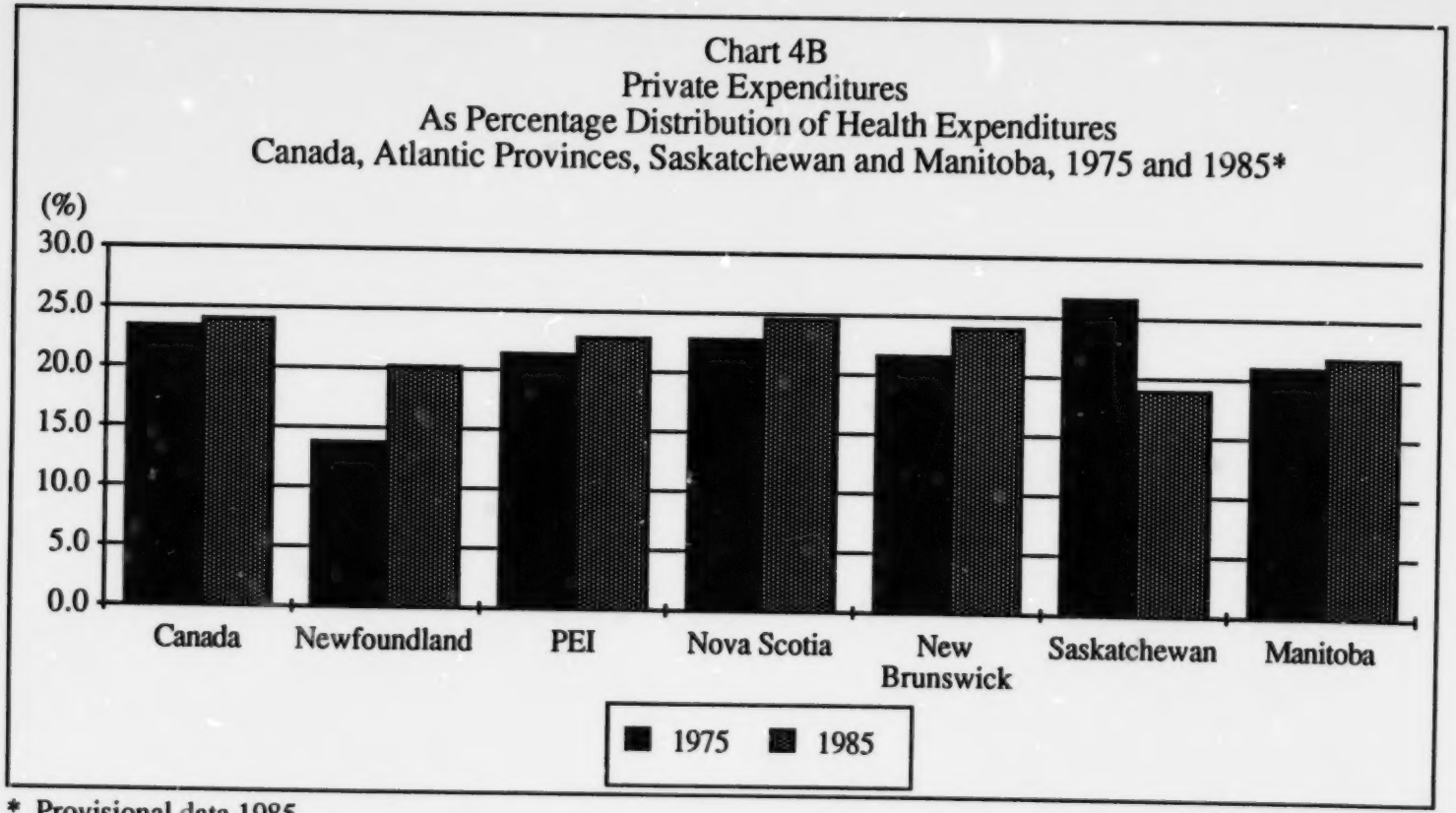
Chart 4A
Public Expenditures
As Percentage Distribution of Health Expenditures
Canada, Atlantic Provinces, Saskatchewan and Manitoba, 1975 and 1985*



* Provisional data 1985

Source: see Table 4

Chart 4B
Private Expenditures
As Percentage Distribution of Health Expenditures
Canada, Atlantic Provinces, Saskatchewan and Manitoba, 1975 and 1985*



* Provisional data 1985

Source: see Table 4

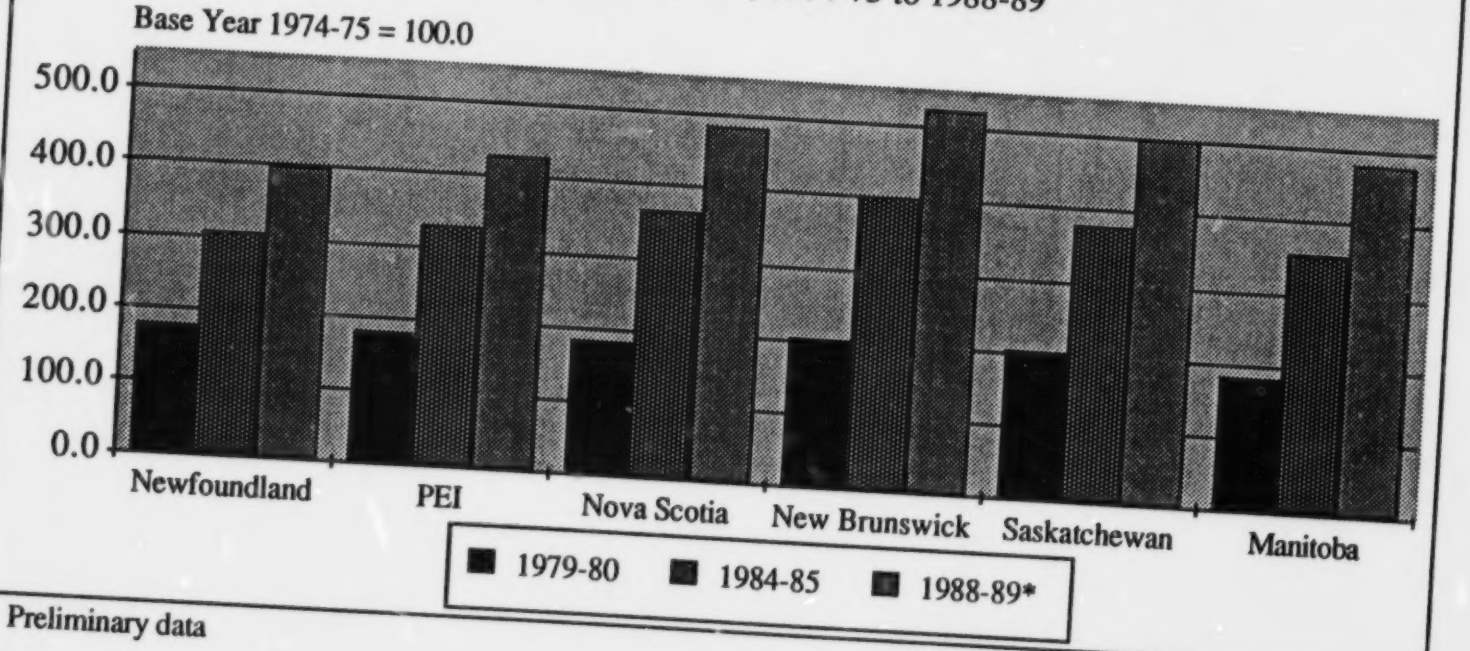
the highest percentage being in Nova Scotia. As provinces try to reconcile access and new
technologies with demographic changes and fiscal pressures, private sector financing and ownership may become increasingly appealing options. Of course, these alternatives would have to be assessed against such important public policy objectives as efficiency, universal coverage, accessibility/uniformity of terms and conditions, comprehensiveness of provision, portability of benefits, most of which are explicit conditions of universal health insurance programs in Canada.

The largest sectoral component, nonetheless, is represented by provincial government expenditures. In Chart 5 and Appendix Tables 3 (a - e), trends and details on the growth and composition of provincial government health expenditure are presented. Using 1974-75 as a base year (index = 100.0), the most significant growth in these expenditures was shown in New Brunswick (index = 527.1 in 1988-89), followed by Saskatchewan (501.3), Nova Scotia (485.0), Manitoba (482.1), Prince Edward Island (429.1), and Newfoundland (401.4).

With respect to health expenditures by type of service, Charts 6A-G and Appendix Table 4 show the composition of spending using the definitions developed by Health and Welfare Canada. As can be seen, institutional expenditures represent the largest component of health care costs – over 50 per cent of the total. While most of institutional spending is accounted for by hospitals, a "shift" has been occurring from hospital to other institutional settings, i.e., homes for the aged; institutions for the physically handicapped, the mentally retarded, emotionally disturbed children, alcoholics, and drug addicts; and nursing homes. This "shift" has been most pronounced in New Brunswick and Saskatchewan; in the latter province in 1985, hospitals consumed 35 per cent of total health care costs and other institutions almost 20 per cent of the total. In Manitoba the proportion spent on hospitals has declined considerably as well. Unlike Saskatchewan and New Brunswick the shifts were noted in the areas of capital and drug expenditures, and "other" health care items. Expenditures for "other" institutions (at more than 13 per cent) have been consistently higher than the national average.

Other major changes occurring between 1975 and 1985 in the Atlantic provinces have been in the drugs and capital expenditures categories. In each of these provinces, expenditures on both prescribed and non-prescribed drugs as a proportion of total health care costs have increased noticeably. The reverse took place with respect to capital expenditures for construction, repair, machinery and equipment of hospitals, clinics, first aid stations, and homes for special care. In Saskatchewan, expenditures for drugs and capital, as a proportion of total costs, remained relatively stable between 1975 and 1985.

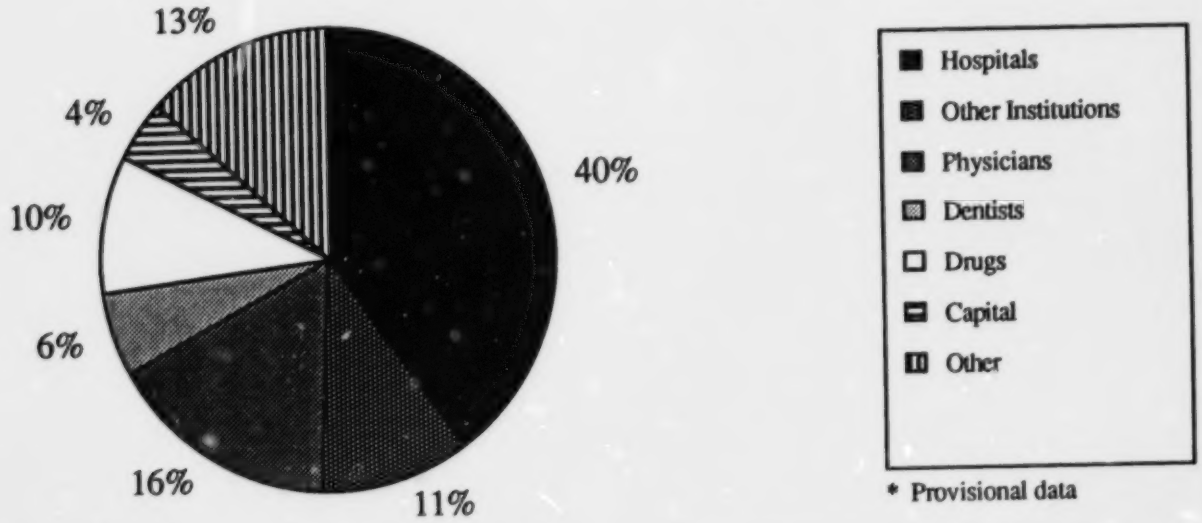
Chart 5
Index of Change in Provincial Health Expenditures
Atlantic Provinces, Saskatchewan and Manitoba
Selected Years, 1974-75 to 1988-89



* Preliminary data

Source: see Tables 3a-f and Appendix B

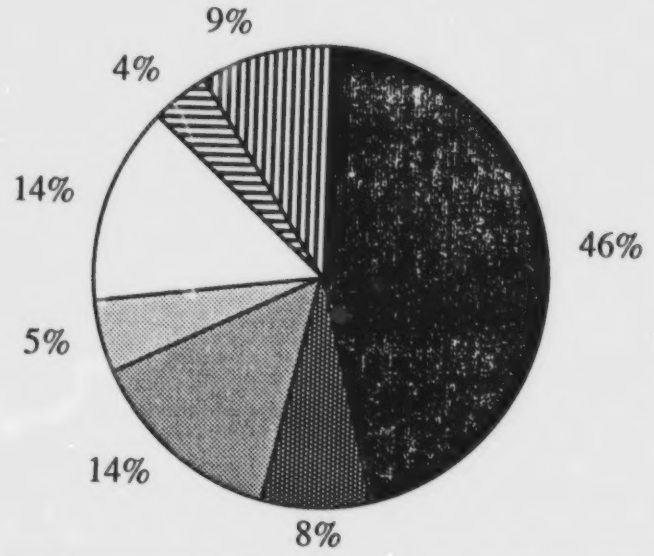
Chart 6A
Percentage Distribution of Total Health Expenditures
By Major Category
Canada 1985*



* Provisional data

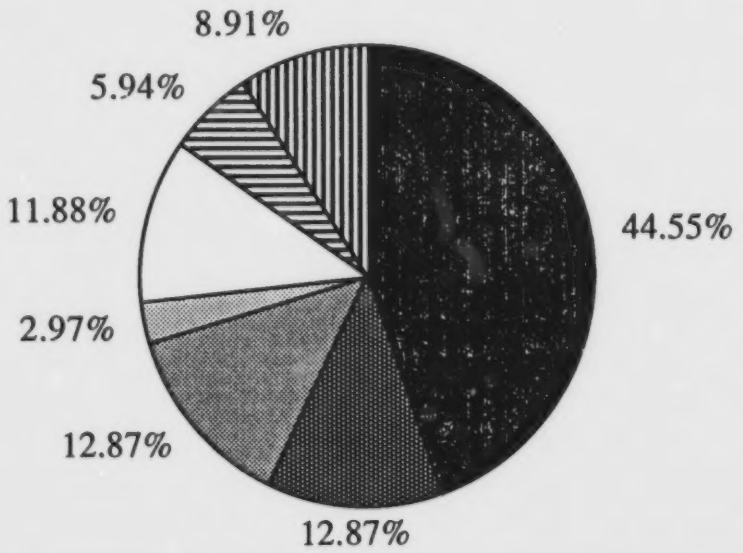
Source: see Table 4

Chart 6B
Percentage Distribution of Total Health Expenditures
By Major Category
Nova Scotia 1985*



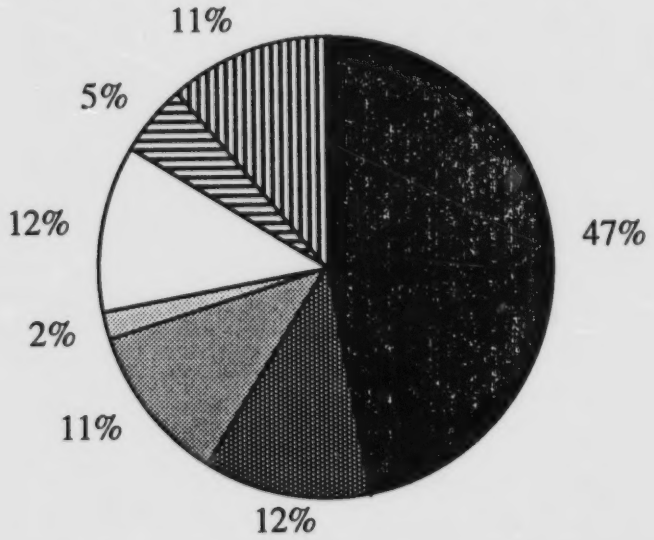
* Provisional data

Chart 6C
Percentage Distribution of Total Health Expenditures
By Major Category
New Brunswick 1985*



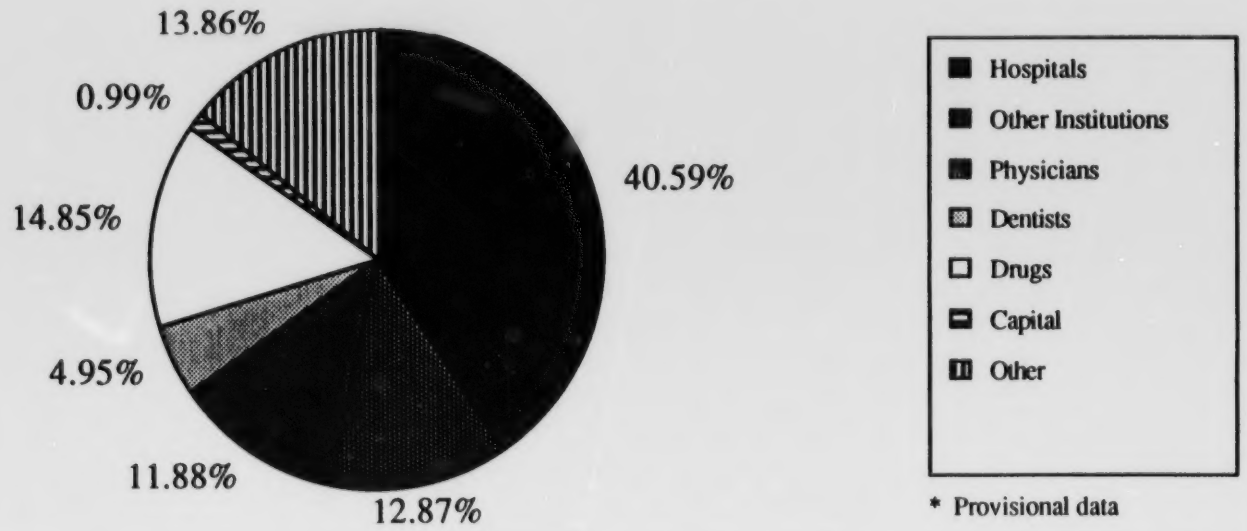
* Provisional data

Chart 6D
Percentage Distribution of Total Health Expenditures
By Major Category
Newfoundland 1985*



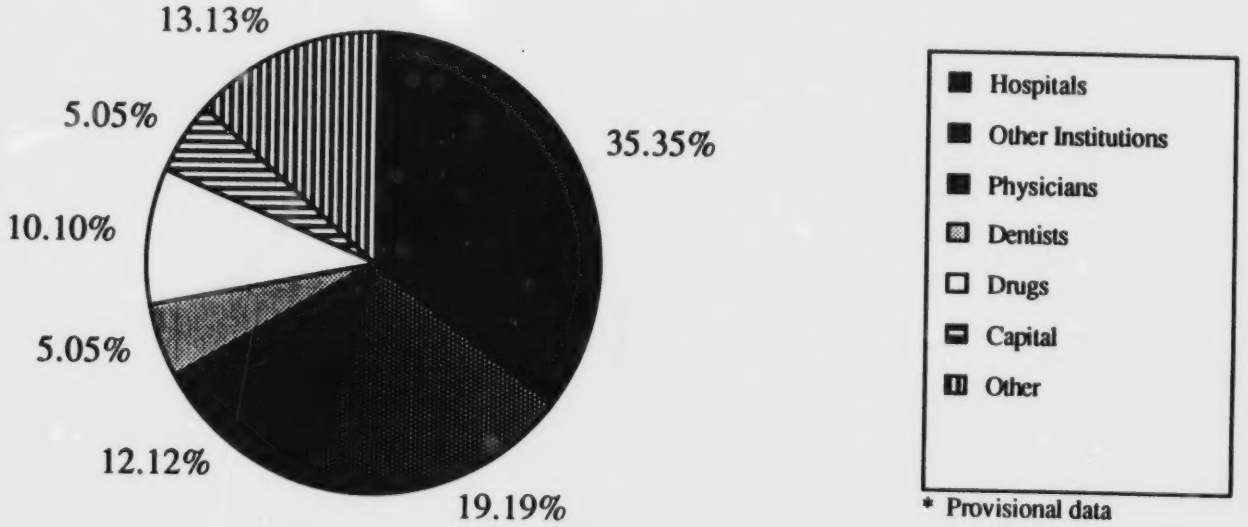
* Provisional data

Chart 6E
Percentage Distribution of Total Health Expenditures
By Major Category
Prince Edward Island 1985*



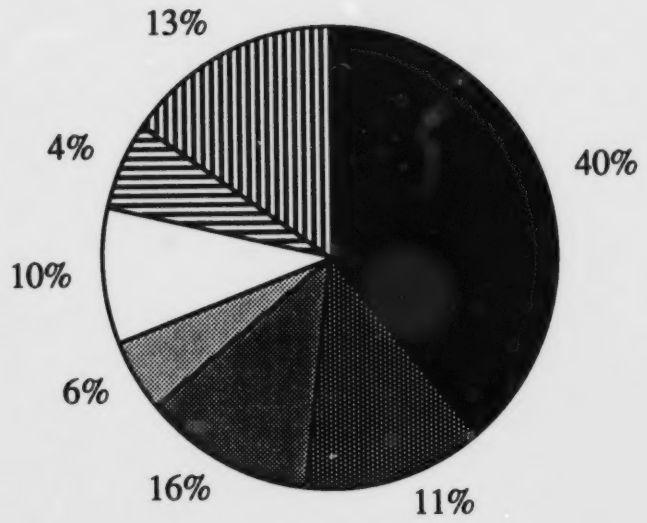
* Provisional data

Chart 6F
Percentage Distribution of Total Health Expenditures
By Major Category
Saskatchewan 1985*



* Provisional data

Chart 6G
Percentage Distribution of Total Health Expenditures
By Major Category
Manitoba 1985*



- Hospitals
- Other Institutions
- Physicians
- Dentists
- Drugs
- Capital
- Other

* Provisional data

After institutions the second largest component of health expenditures is by and large for physicians. This category represents expenditures on professional health services provided by physicians, the largest element of which is professional fees paid by provincial medical care insurance plans. As a proportion of total health care costs, those for physicians remained relatively stable at between 10 and 15 per cent from 1975 to 1985 in each of the six provinces considered in this study. Factors related to physician expenditures, e.g., supply, fees, practice patterns, are considered in more detail in the next section of this report. Interestingly, in 1985 the proportion of total expenditures going for drugs exceeded that for physicians in Newfoundland, Prince Edward Island and Nova Scotia.

Other health expenditures include all other health expenses such as therapeutic appliances, public health, health research, etc. This category accounted for more than 12 per cent in 1985, up from just over 11 per cent in 1975. Given Canada's performance in health research and the stability of spending on public health and prepayment administration, the only category which might have an impact on future health care costs in this broad component is therapeutic appliances, e.g., cardiac pace-makers, infusion pumps, intraocular lenses, parenteral and enteral nutrients, etc., particularly in view of changes in illness trends and an aging population. Also, given the dramatic change in capital expenditures for each of the Atlantic provinces between 1975 and 1985, the age and amount of capital equipment and physical plant also affects health expenditures, particularly in the institutional sector. This, too, should be borne in mind for future health care expenditures.

III. FACTORS RELATED TO HEALTH CARE COSTS

Factors which usually are associated with the increase in health care costs are those related to population growth and health status, health costs inflation, changes in utilization, and intensity of services provided to the population. In order to provide some insight into inter-provincial differences in key aspects of health care expenditures, it is important to examine differences in population demographics, particularly since it is suggested that population composition is an important determinant of both health expenditures and of the ability of the "economically productive" population to support the dependent population, i.e., children and senior citizens.

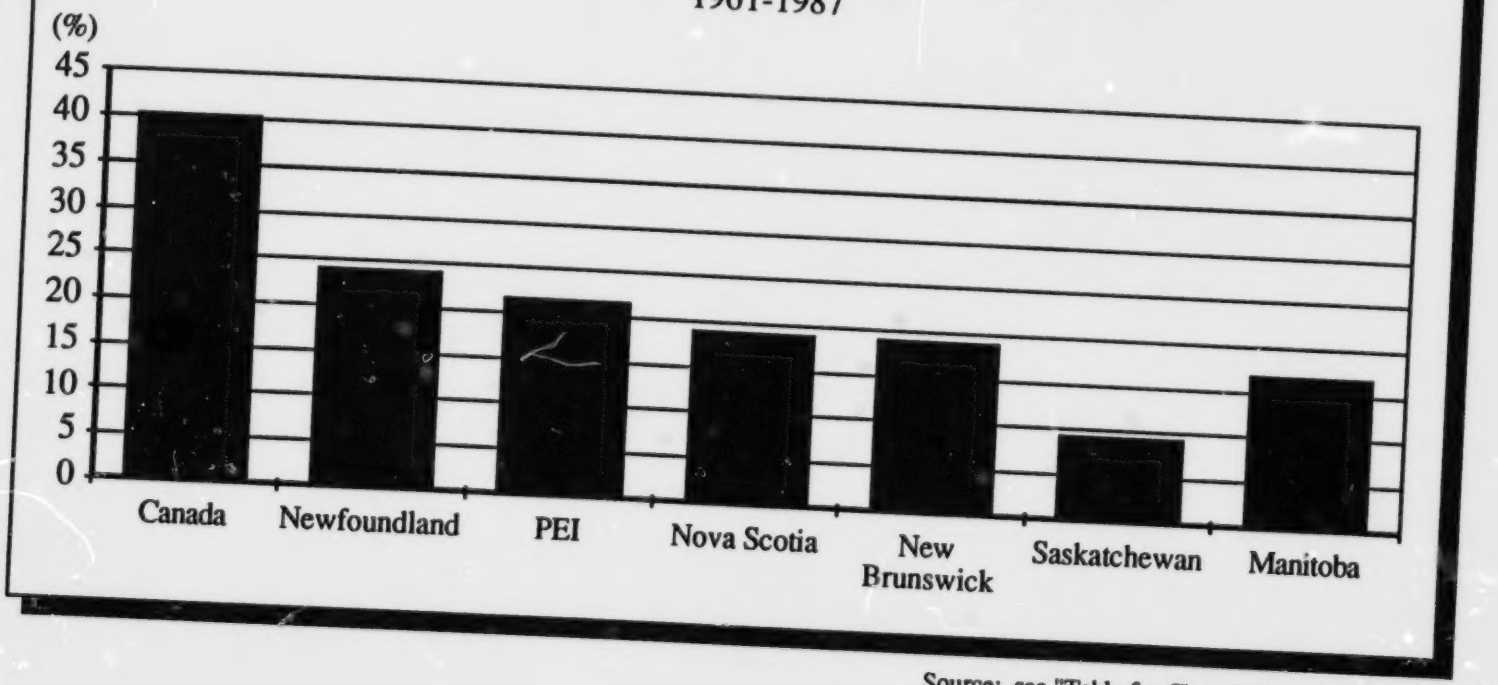
Population Composition

For the five provinces examined in this study, the rate of population growth has been substantially lower than the Canadian average. Chart 7 indicates that while the rate of growth of Canada's population as a whole climbed 41 per cent between 1961 and 1987, the growth rate for each of the Atlantic provinces and Manitoba was about half the Canadian rate. In Saskatchewan, population grew by less than 10 per cent during the same period of time. Given the previously noted finding that constant dollar per capita health care costs increased by 44 per cent between 1975 and 1985, it is difficult to suggest that health care costs have increased in response to population growth.

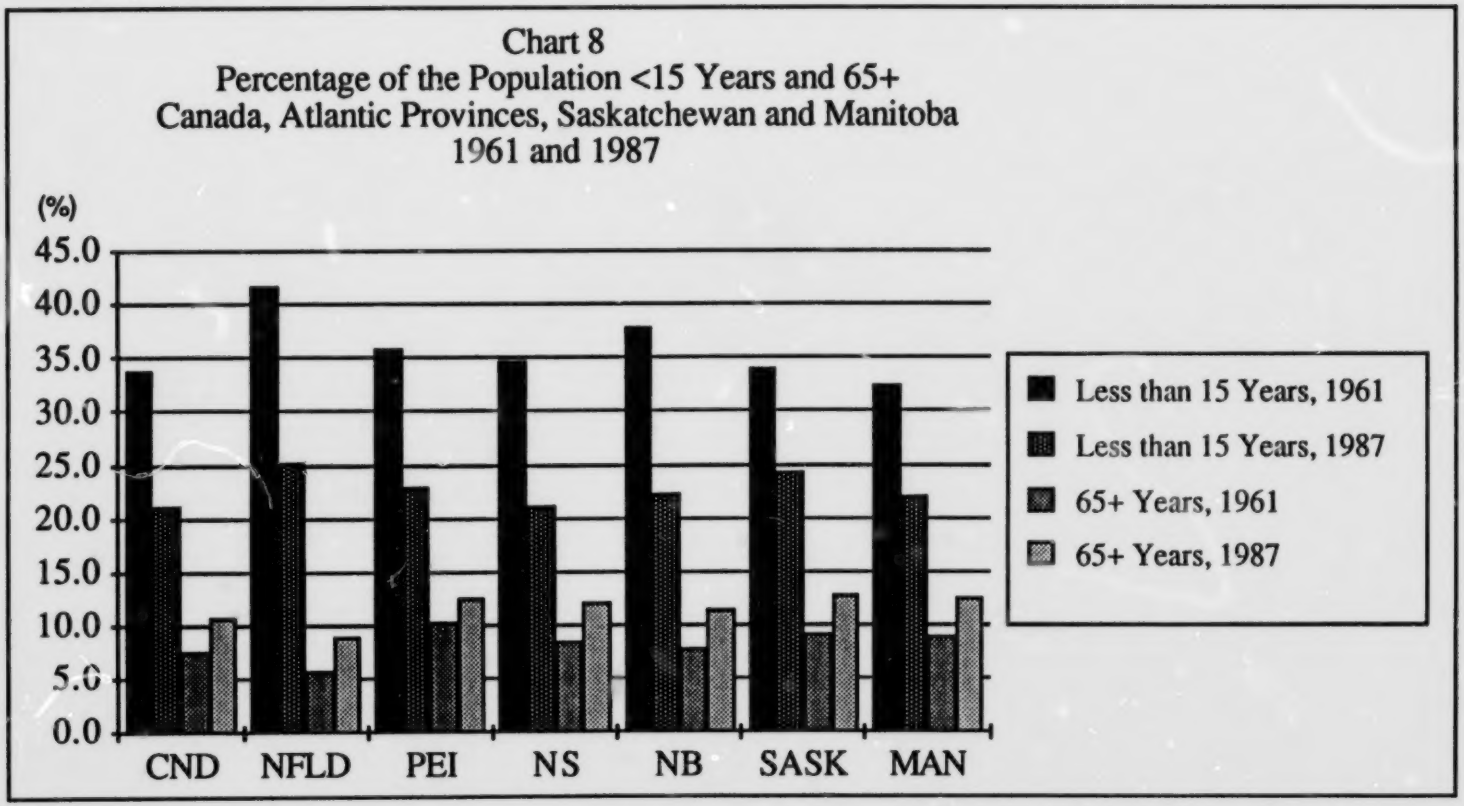
One of the most rapidly growing segments of the Canadian population is represented by that group aged 65 and over. Census data indicate that this group in Canada has gone from almost 8 to 11 per cent of the total population, a 43 per cent increase between 1961 and 1987. Except for Newfoundland, the six provinces examined in this report have had a higher proportion of seniors than has had the rest of the country. The most significant growth rates in the population aged 65 and over between 1961 and 1987 have occurred in Newfoundland (53%), New Brunswick (44%), Nova Scotia and Manitoba (41%), and Saskatchewan (40%). Prince Edward Island, where the proportion of seniors always has been noticeably higher than elsewhere, has shown the lowest rate of growth in this age group (22%). Of the six provinces, Saskatchewan has the greatest proportion of its population aged 65 and over (13%), followed by Prince Edward Island and Manitoba (12.7%), Nova Scotia (12.1%), New Brunswick (11.4%), and Newfoundland (9.0%), see Chart 8.

It is worth pointing out that during the period of time which Canada's population has been aging, the proportion of children under 15 years of age has decreased dramatically from 34 to 21 per cent. Of all six provinces, Nova Scotia had the lowest proportion of children in 1987 (21%). Presumably, with such shifts in the growth of the youngest and oldest segments of the population, one might expect that resources with which to provide health care services may (or could) have shifted from one group to another.

Chart 7
Rate of Population Growth
Canada, Atlantic Provinces, Saskatchewan and Manitoba
1961-1987



Source: see "Table for Chart 7," Appendix B

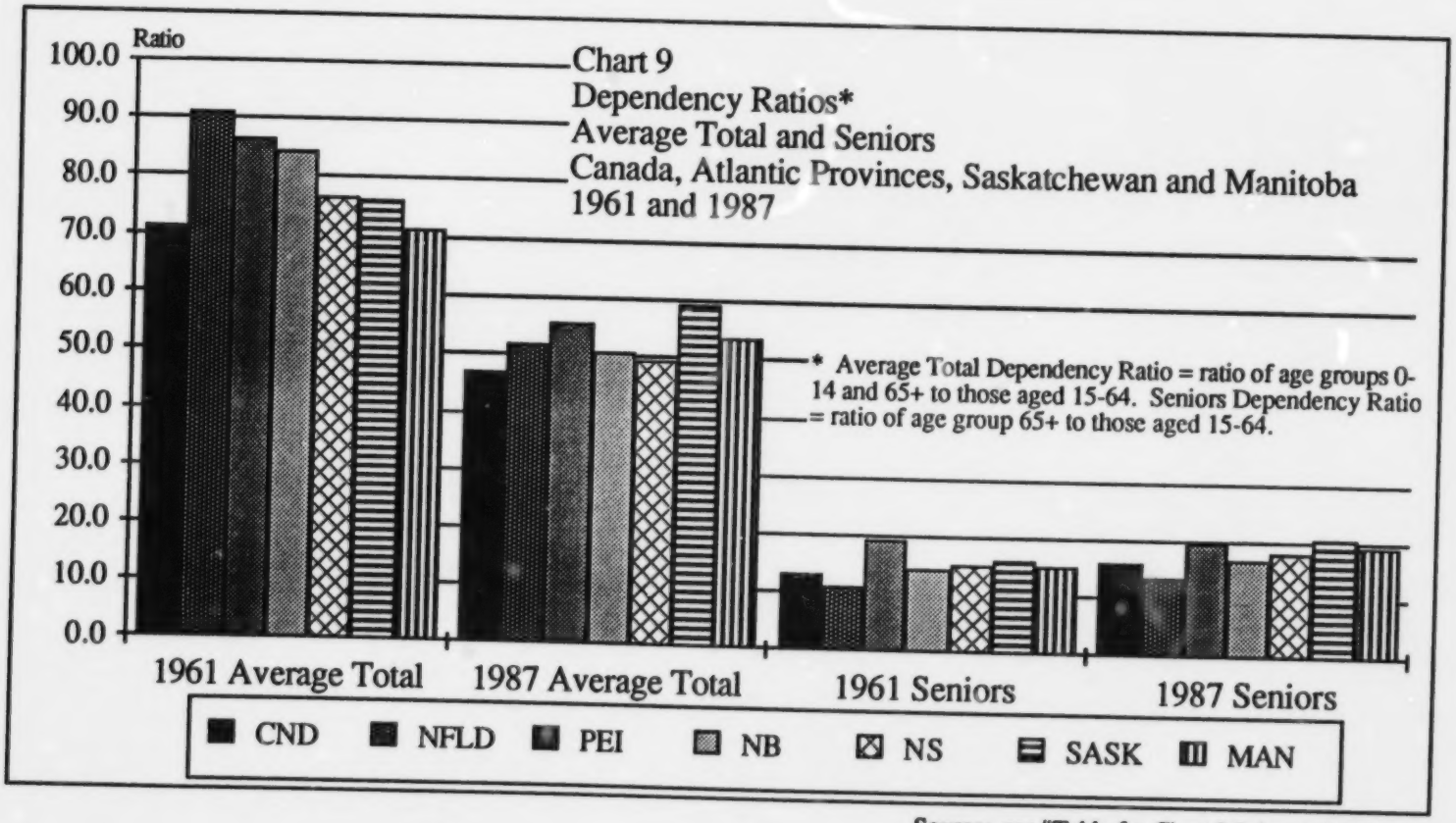


Source: see "Table for Chart 8," Appendix B

Reflecting these changes in population age and structure, Chart 9 shows average total and seniors' dependency ratios for 1961 and 1987. Average total dependency in Canada, i.e., the ratio of those people under 15 years of age and over age 64 to those 15 to 64 years of age decreased from 71 per cent in 1961 to 47 per cent in 1987. In 1987, this ratio ranged from a high of 59 per cent in Saskatchewan to a low of 50 per cent in Nova Scotia. The seniors' dependency ratio (i.e., ratio of those aged 65 and over to those 15 to 64 years of age), which was 16 per cent in 1987 for Canada as a whole, ranged from 21 per cent in Saskatchewan to 14 per cent in Newfoundland. Except for the latter province, the seniors' dependency ratio in all the Atlantic provinces and Manitoba exceeded the national average.

Clearly, then, there are significant differences in population among the provinces under consideration. Do these differences help to explain the differences in spending patterns? If one might expect provinces which had higher proportions of seniors to spend more of GDP on health care services, there should be a direct relationship between health care costs as a percentage of GDP and the proportion of total population over age 65: in fact, for the six provinces being considered, the association is more inverse than direct. Saskatchewan has the highest proportion of senior citizens but has the lowest spending as a percentage of GDP; Newfoundland has the lowest proportion of seniors, but spends the second highest percentage of GDP on health. Interestingly, provinces which have shown the greatest rate of growth in population between 1961 and 1987, generally spend the highest percentage of GDP on health care. Newfoundland and Prince Edward Island showed the most significant population growth rates and in the mid-1980s had the highest percentage of GDP going for health care; Saskatchewan with only a 10 per cent increase in population growth, had the lowest ratio of health care costs to GDP.

Perhaps one possible explanation for provinces which have maintained lower ratios of health care costs to GDP is that they have been shifting expenditures from expensive secondary and tertiary care hospitals to other forms of health care delivery which can, perhaps, more appropriately care for an aging population at lower cost. Of the six provinces being considered in this report, Saskatchewan, New Brunswick and Manitoba appear to have been making these shifts in spending. In Saskatchewan between 1975 and 1985, spending on hospitals has gone from 41 to 35 per cent and that for other institutions from 13 to 19 per cent. New Brunswick, meanwhile, has decreased hospital expenditures from 50 to 45 per cent and other institutions from 7 to 13 per cent. As noted earlier, Manitoba expenditures for institutions have been consistent at over 13 percent. Hospital expenditures have dropped from 45 to 39 percent.



Source: see "Table for Chart 9," Appendix E

Although Canadian data do not allow us to obtain costs directly associated with specific illnesses, studies done internationally on concentration of health expenditures have shown that a small proportion of people, e.g., persons in their last year(s) of life, people with heavy prior use of services, are responsible for a significantly greater proportion of health resources consumed than the general population. Of course, these concentrations of spending result in large part from the unequal distribution of needs across population groups. Also, the structure of the existing health care system adds pressure on the cost side as well. The hospital and medical services system established some 30 years ago was designed to treat acute, short term medical problems, illnesses, and injuries. Today, many of the problems with which this system is trying to contend are gradual in onset, disabling in nature, and long term in duration. The existing system is ill-equipped to deal with these problems in a cost-effective way. Reinforcing the above observation, provinces which have been shifting expenditures to delivery modes better able to deal with the majority of existing health problems appear to have been showing increased ability to maintain control on costs. This is not, however, to discount the impact which utilization, intensity of service and providers can have on overall costs in the system. These are considered later.

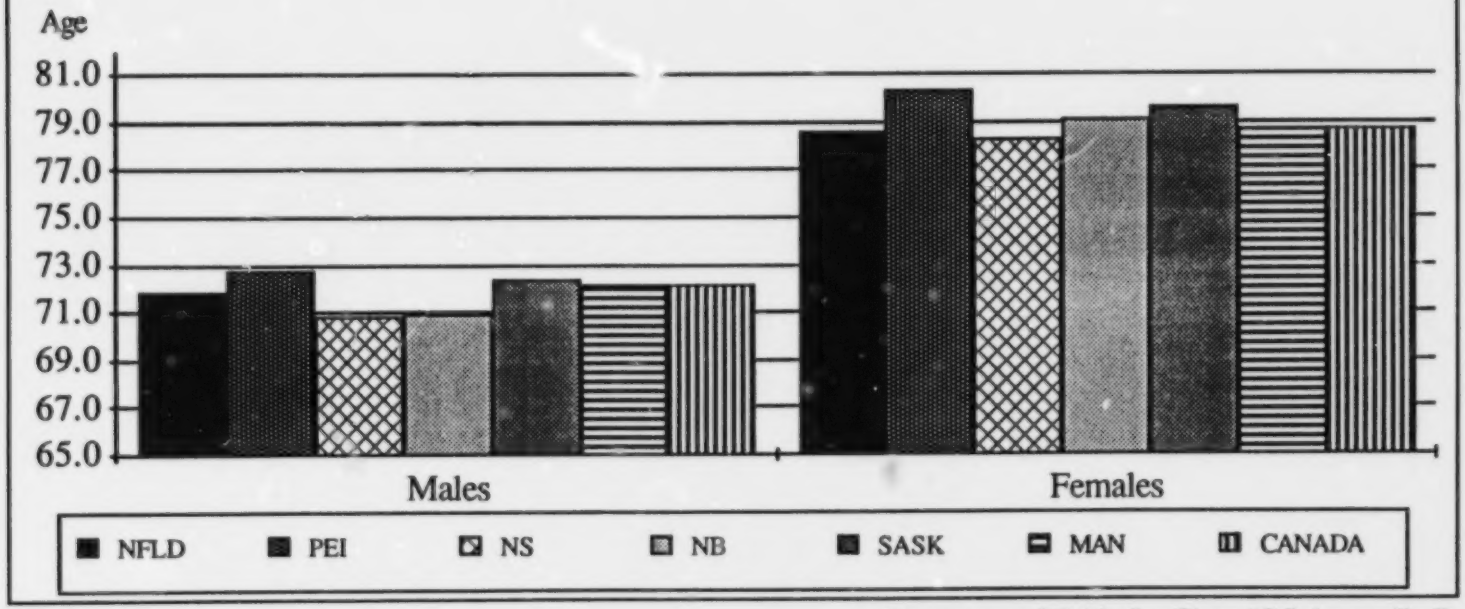
Health Status

Before looking at utilization factors, are there differences in health status among the population of the respective provinces which might help to explain the differences in spending patterns? Comparing estimates of life expectancy at birth, to the percentage of GDP spent on health care provides no definitive answer to whether or not increased health expenditures leads to longer life. While life expectancy for both males and females and the percentage of GDP spent on health care are highest in Prince Edward Island, the second highest life expectancy estimates (for both males and females) are found in Saskatchewan, the province which (of the six) spends the lowest percentage of GDP on health care (Chart 10).

Looking at the relationship between the proportion of GDP spent on health care and other "measures" of health status is also inconclusive. For instance, Prince Edward Island spends the highest proportion of its GDP on health services, but also has the highest overall death rates for males. Newfoundland, which has the next highest percentage of GDP going to health care services, has one of the lowest death rates for males. Nova Scotia, with the second highest death rates for males and females, spends the third lowest percentage of GDP on health care (Charts 11A-B).

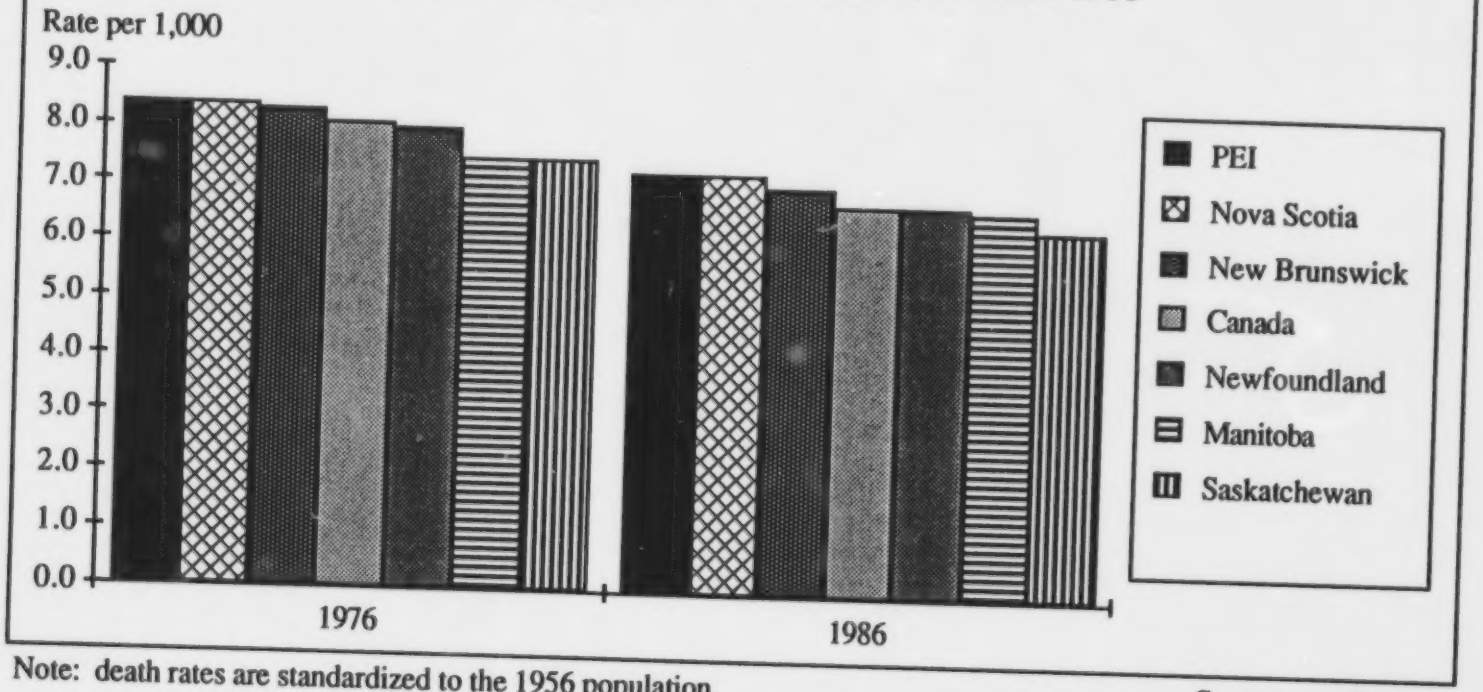
With respect to potential years of life lost (PYLL) due to all causes of death, Prince Edward Island (which allocates the highest percentage of GDP on health) has the lowest rate for females and third lowest for males. However, Prince Edward Island has the highest PYLL for males when it comes to deaths

Chart 10
Life Expectancy at Birth
Atlantic Provinces, Saskatchewan, Manitoba and Canada
Males and Females, 1980-82



Source: see "Table for Chart 10," Appendix B

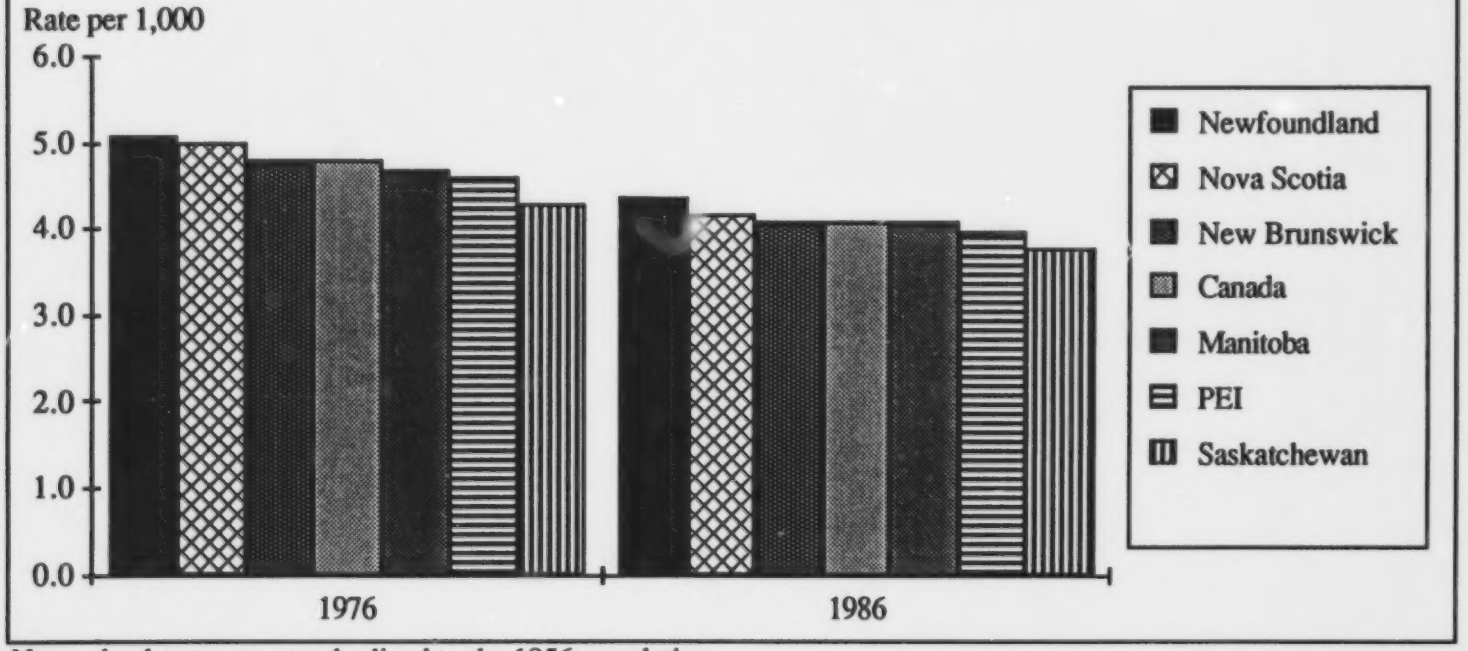
Chart 11A
Death Rates* per 1,000 Population, Males
Atlantic Provinces, Saskatchewan, Manitoba and Canada, 1976 and 1986



Note: death rates are standardized to the 1956 population.

Source: see Table 6

Chart 11B
Death Rates* per 1,000 Population, Females
Atlantic Provinces, Saskatchewan, Manitoba and Canada, 1976 and 1986



Note: death rates are standardized to the 1956 population.

Source: see Table 6

due to coronary heart disease and to deaths resulting from lung cancer. Nova Scotia, with the third lowest proportion of GDP spent on health care, has consistently high rates of PYLL, especially for deaths due to coronary heart disease, lung cancer (among females), and female breast cancer. As we are discovering, these health "problems" have much of their genesis in lifestyle, environmental and perhaps even genetic factors. Saskatchewan, which has the lowest percentage of GDP allocated to health care services, had the lowest rate of PYLL for deaths resulting from coronary heart disease (males and females), lung cancer (males), and breast cancer (females). (See Charts 12A-D).

There also does not appear to be any clear relationship between the amount of GDP which a province spends on health care services and the health risk behaviours of its residents. Newfoundland, with the second highest percentage of GDP spent on health care has the highest proportion of the male population who are regular smokers. On the other hand, Prince Edward Island (which spends the highest percentage of GDP on health care) and Saskatchewan (with the lowest percentage of GDP going to health care) both have low proportions of their populations who are regular smokers (Chart 13).

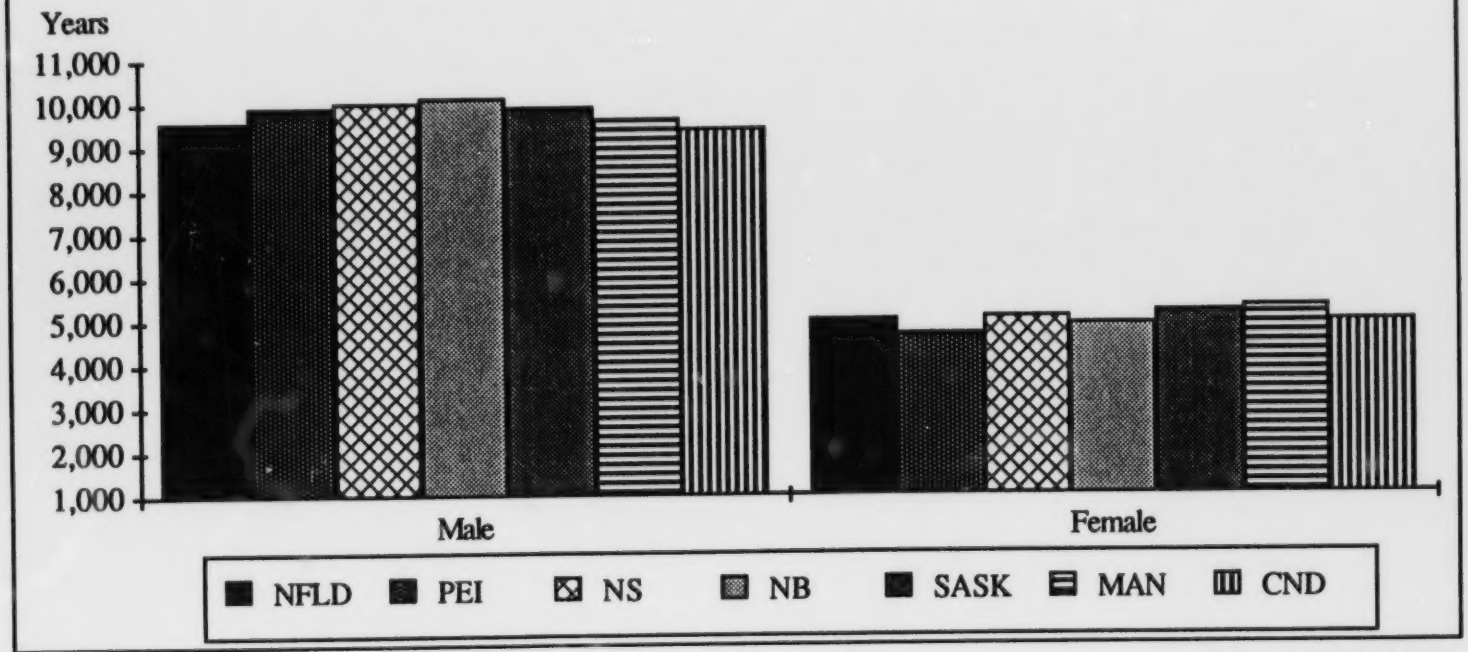
To be certain, the above "measures" of health status are perhaps crude and less refined and sensitive than would be desirable, but as is pointed out in another report which examines demographic and health status factors in the population, the data with which we must work are rather inadequate.

Utilization

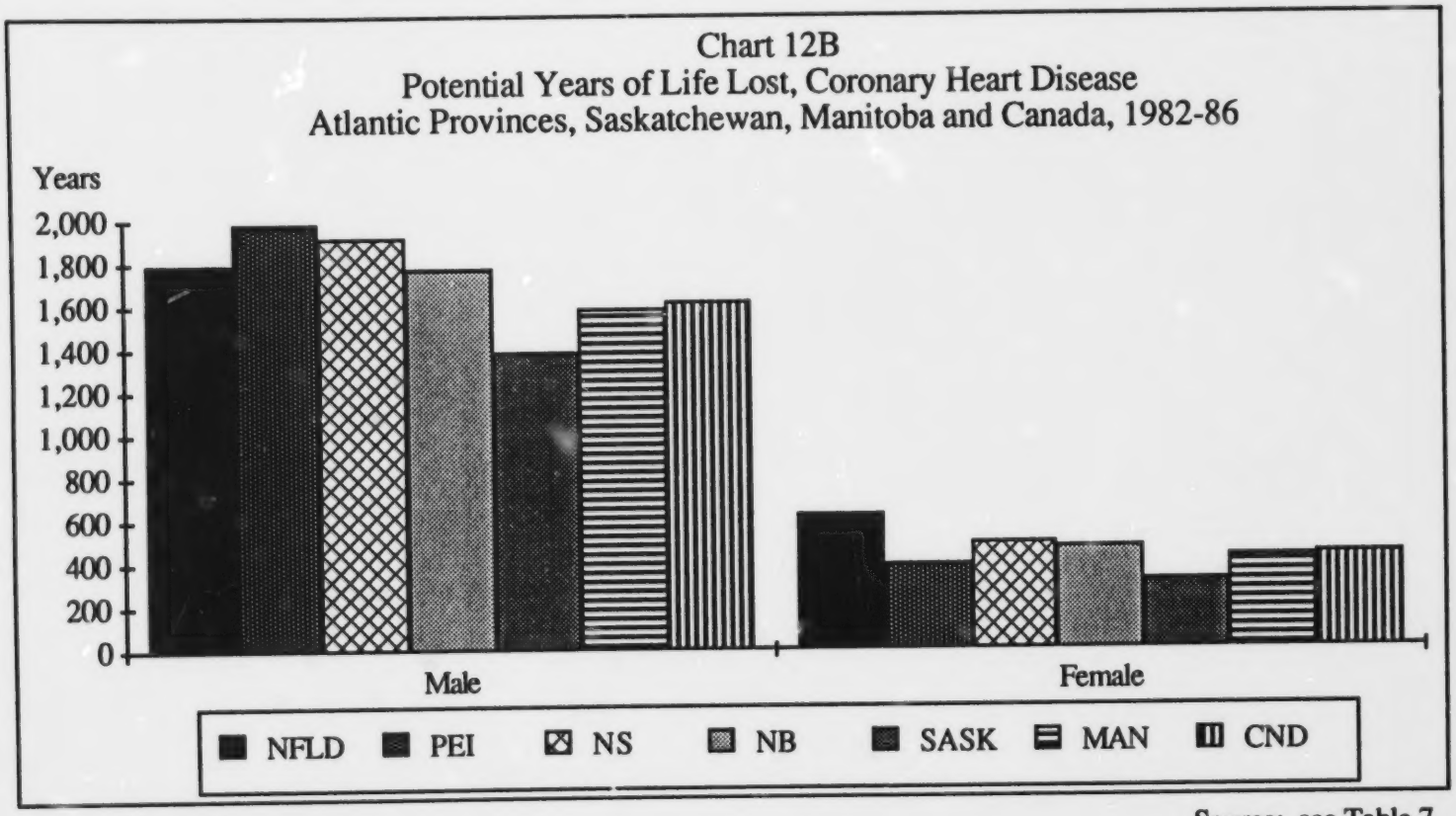
Perhaps differences in utilization and medical practice patterns can shed some light on the reasons for differences in health care expenditures across provinces. Previous research at both the national and international levels have found substantial variation in surgery rates for various (usually elective) procedures, admission/separation rates, hospital inpatient days per capita, occupancy rates of hospitals, ambulatory visits, and supply of physicians which could help explain these differences.

With respect to differences in medical practice patterns, surgical rates for Cesarean sections, hysterectomies, gall bladders, appendectomies, hernia repairs, prostatectomies, and tonsillectomies were examined for 1984-85 in each of the provinces under consideration for this study. As can be seen in Chart 14 A & B, there was significant variation in surgical rates for all of the elective procedures selected. The highest rates of Cesarean sections and hysterectomies were found in Newfoundland, and the lowest surgical rates for these procedures were in Prince Edward Island. There does not appear to be any conclusive relation between surgical rates and the percentage of GDP spent on health care: Prince Edward Island and Newfoundland had the first and second highest percentage of GDP going to health care services. In

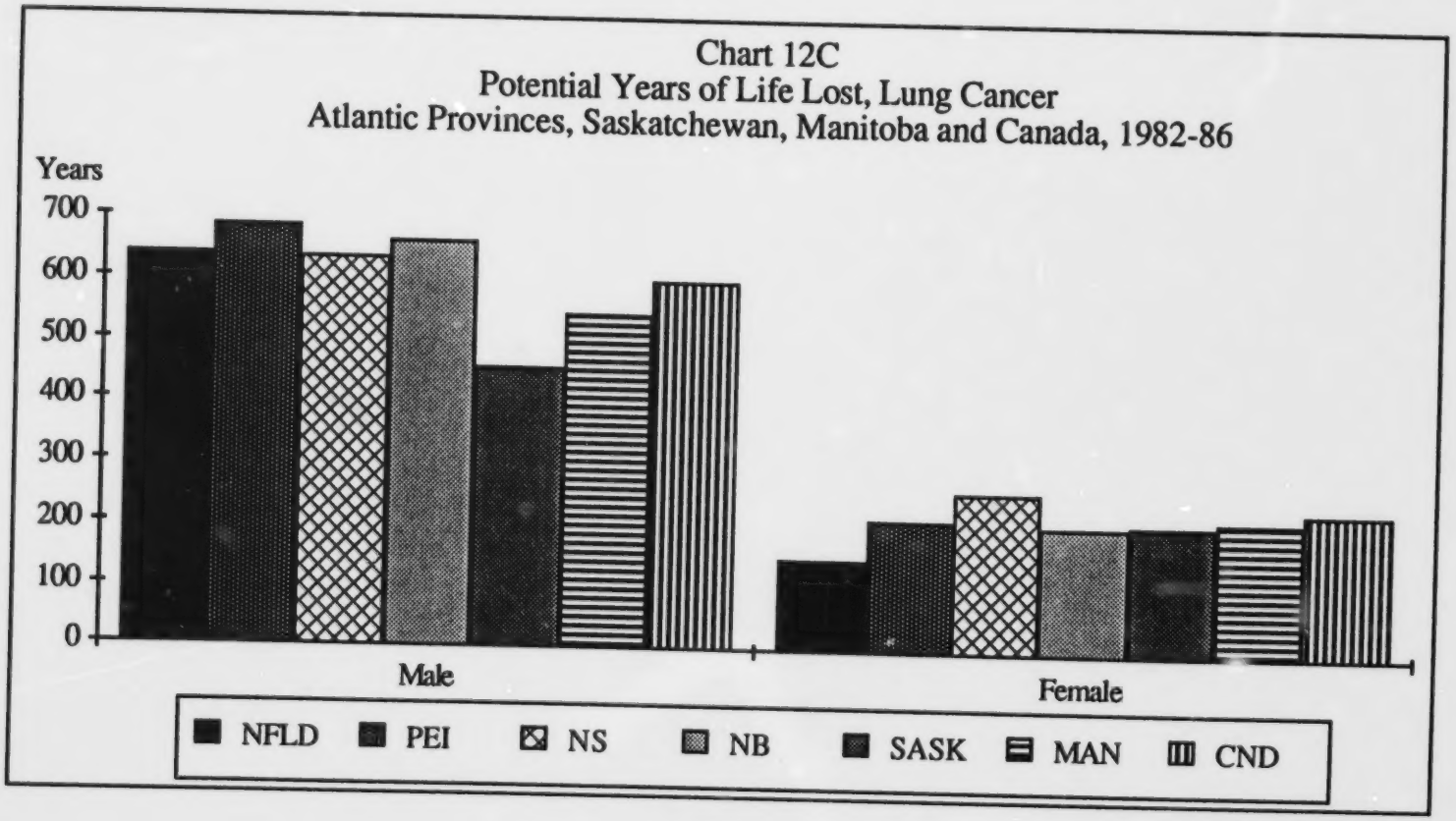
Chart 12A
Potential Years of Life Lost, All Causes of Death
Atlantic Provinces, Saskatchewan, Mantitoba and Canada, 1982-86



Source: see Table 7

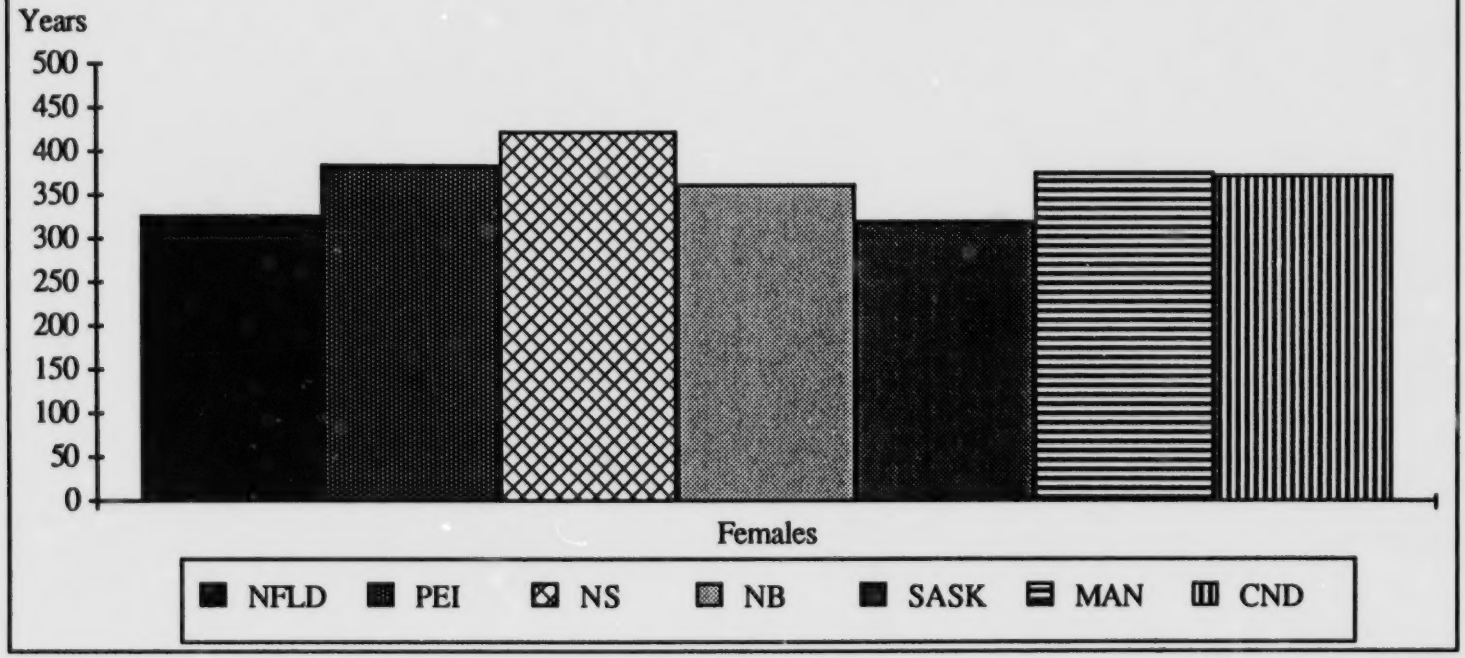


Source: see Table 7



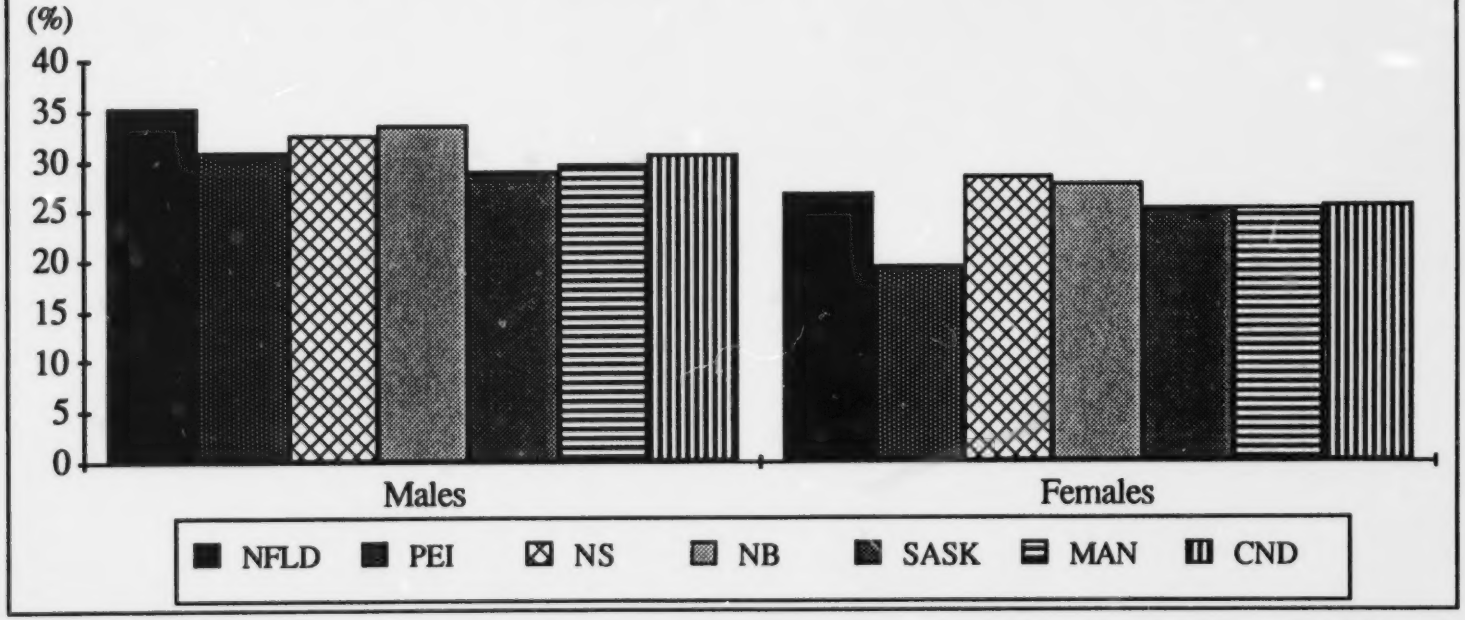
Source: see Table 7

Chart 12D
Potential Years of Life Lost, Breast Cancer
Atlantic Provinces, Saskatchewan, Manitoba and Canada, 1982-86



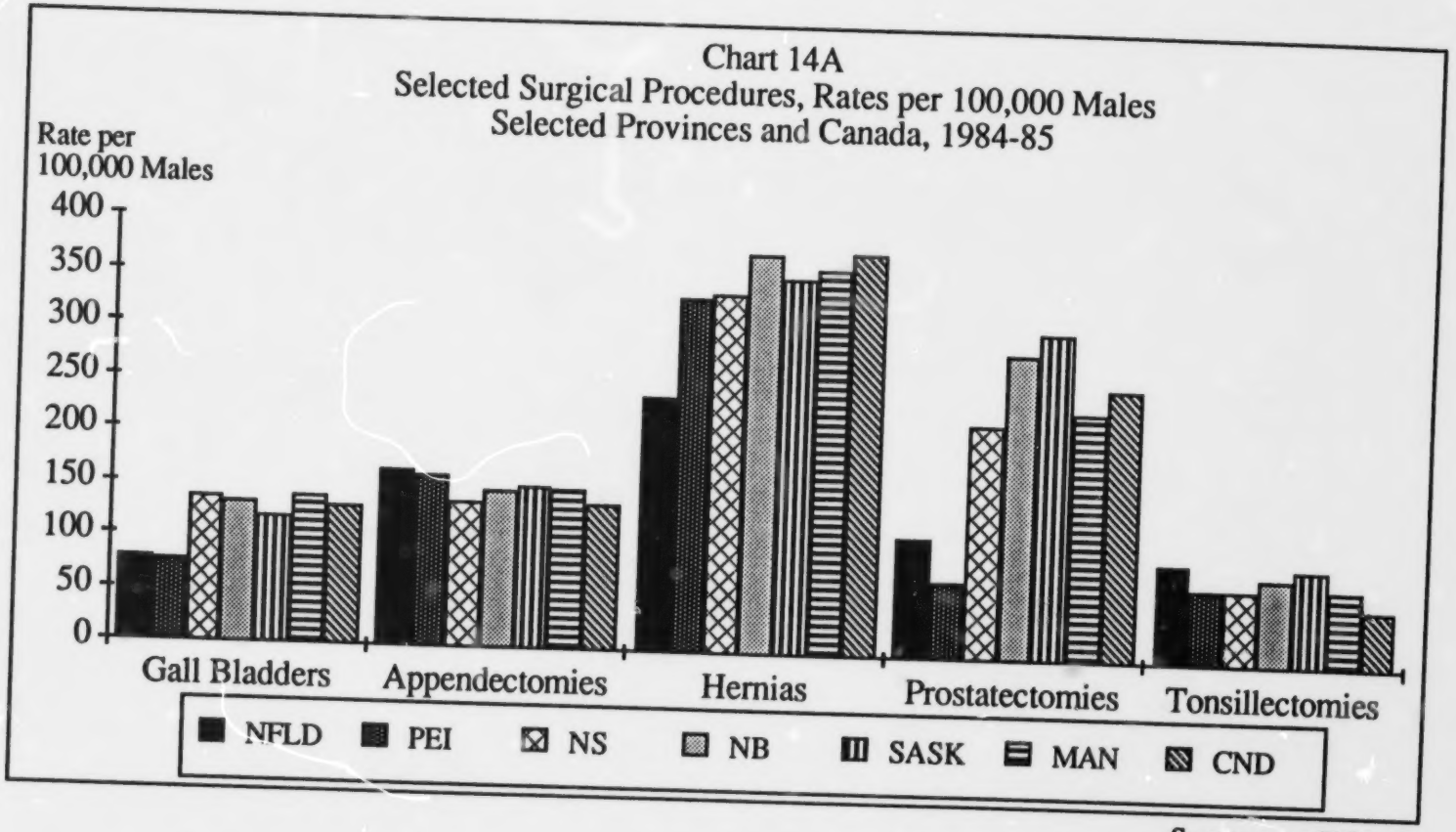
Source: see Table 7

Chart 13
Percentage of the Population Regular Tobacco Smokers
Population Aged 15+,
Atlantic Provinces, Saskatchewan, Manitoba and Canada, 1986



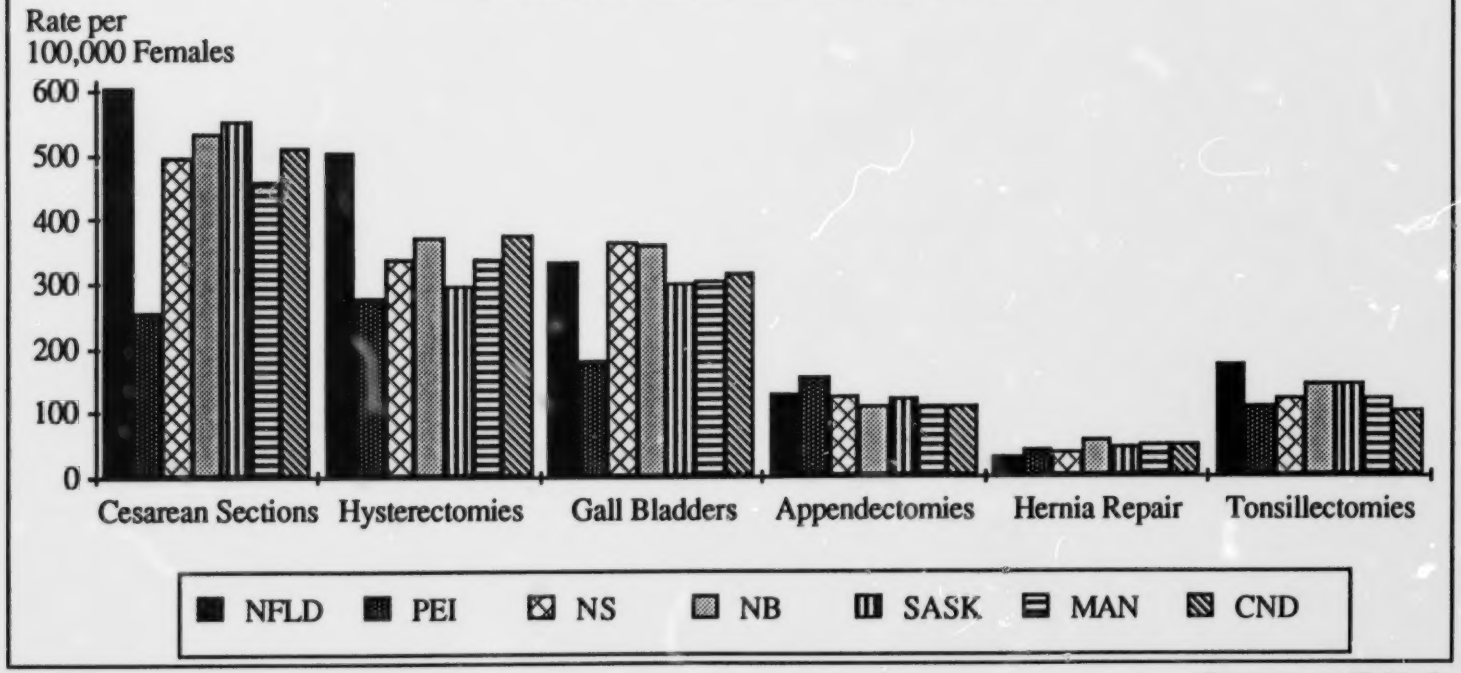
Source: see Table 5

Chart 14A
Selected Surgical Procedures, Rates per 100,000 Males
Selected Provinces and Canada, 1984-85



Source: see Table 9

Chart 14B
Selected Surgical Procedures, Rates per 100,000 Females
Selected Provinces and Canada, 1984-85



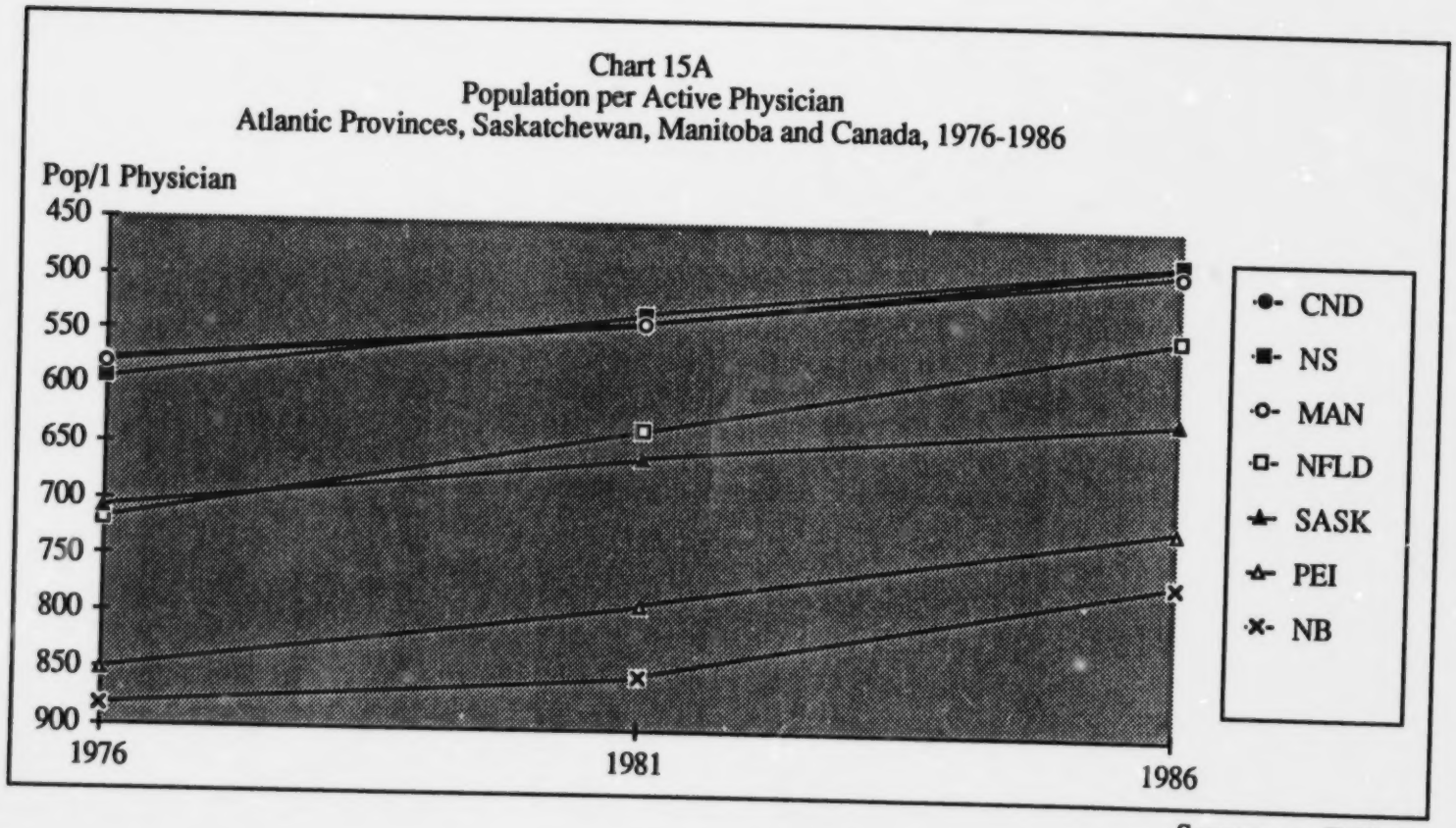
Source: see Table 9

addition to being "first" in Cesarean sections and hysterectomies, Newfoundland also had the highest rate of tonsillectomies. Prince Edward Island had the highest rates of appendectomies, Nova Scotia the highest rate of gall bladder operations, New Brunswick the greatest rate of hernia repairs, and Saskatchewan was highest in the rate of prostatectomies performed.

Differences in these rates across the six provinces considered in this study could be as a result of uncertainty regarding medical treatment, differences in characteristics of the respective delivery systems, differences in access to care, differences in the supply of providers, or even as a result of differences in health status of the population. In Canada, it would seem that problems related to access, differences in delivery systems, and even uncertainty regarding medical treatment should be minor factors. As already noted elsewhere, the paucity of relevant and reliable health status indicators make it difficult to determine the extent of real differences in population health status.

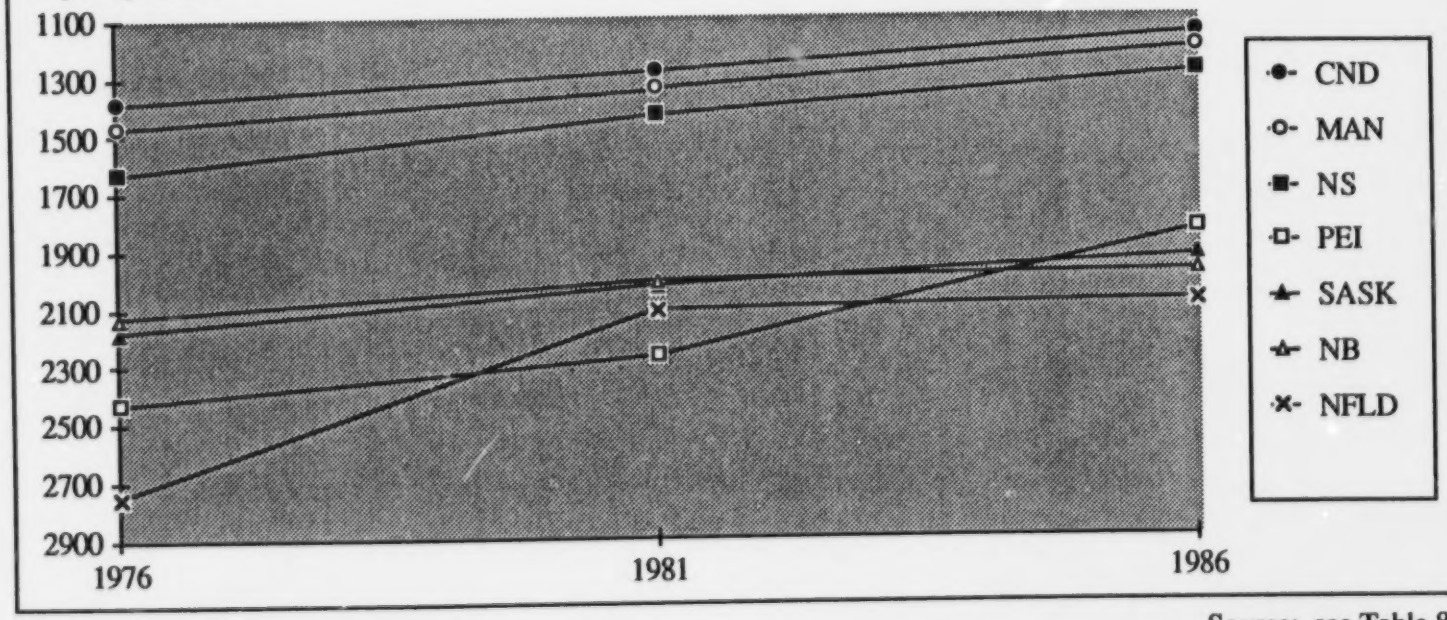
What about differences in the supply of physicians and in office visits? Of the six provinces considered for this report, Nova Scotia has had the highest physician-population ratio (1:479 in 1986), followed by Manitoba (1:488), Newfoundland (1:545), Saskatchewan (1:620), Prince Edward Island (1:716), and New Brunswick (1:764). The Canadian average in 1986 was 1:479. The ratio of specialists to population was somewhat different. After Manitoba (1:1204),Nova Scotia had the second highest physician-population ratio in this regard (1:1288), but this time was followed by Prince Edward Island (1:1838), Saskatchewan (1:1930), New Brunswick (1:1984), and Newfoundland (1:2087). (See Charts 15A-B and Table 8.) It seems that there is little consistent connection between the size of these ratios and the proportion of GDP spent on health care. For example, Prince Edward Island had the highest proportion of its GDP going towards health care, and maintained the fifth and sixth highest overall and specialist physician ratios, respectively. On the other hand, Saskatchewan which had the lowest ratio of GDP spent on health care, showed the third and fourth highest overall and specialist physician ratios. The other provinces varied around these extremes. When one examines these physician-population ratios with regard to the surgical rates for seven selected elective procedures, the relationships between the two are even more unclear. Newfoundland with its fifth highest specialist population ratio has the highest surgical rates for three of the seven procedures. Nova Scotia, on the other hand, has the second highest specialist-population ratio, but except for gall bladder operations, has the third, fourth or fifth highest rates of surgery for most of the elective procedures examined.

A factor related to physician supply and rates of surgical procedures which might explain inter-provincial differences in health expenditures is the use of physician services (or use of ambulatory care) by the population. Published



Source: see Table 8

Chart 15B
Population per Specialist
Atlantic Provinces, Saskatchewan, Manitoba and Canada, 1976-1986



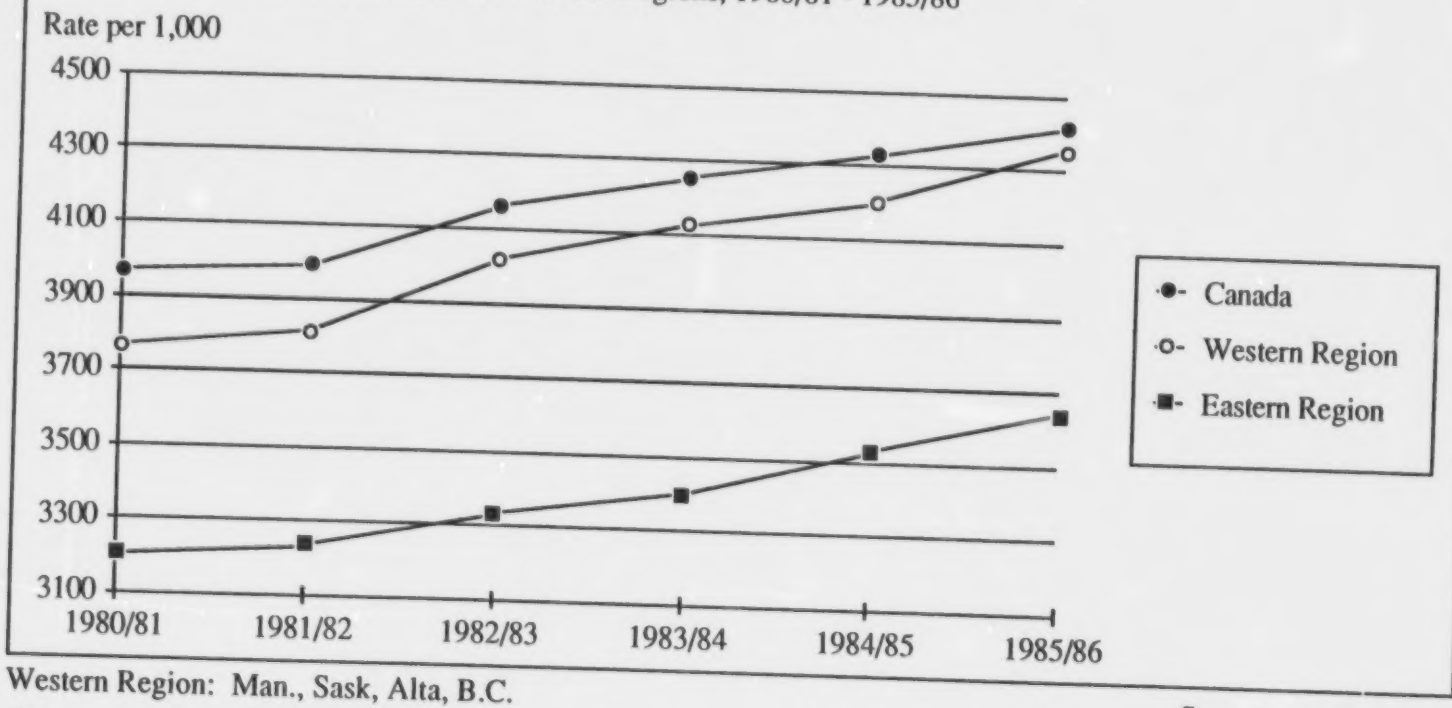
Source: see Table 8

data on office visits to physicians are available only by major region in the country, i.e., "Eastern" comprising the Atlantic provinces, "Central" made up of Ontario and Quebec, and "Western" composed of Manitoba, Saskatchewan, Alberta, and British Columbia (see Chart 16 and Table 10). Only if individual provinces "give permission" to Health and Welfare Canada to allow their data to be made available, can provincial information be obtained. As the data exist at the present time, very little can be said with respect to comparisons among the six provinces being considered for this report. What may be noted is that while the rate of physician visits per 1,000 population increased almost 14 per cent between 1980/81 and 1985/86 in the Eastern region, the growth in the provincial physician-population ratios between 1981 and 1986 were almost 17 per cent in Newfoundland, 10 per cent in Prince Edward Island, 11 per cent in Nova Scotia, and 12 per cent in New Brunswick. Comparable rates of change in the Western region during this same period of time were: almost 16 per cent in the rate of physician visits per 1,000 population; for the physician-population ratios, almost 10 per cent in Manitoba, 6 per cent in Saskatchewan, 17 per cent in Alberta, and 10 per cent in British Columbia. In order to provide any further insights — if any exist — it would be advisable to compare the rate of physician visits for each of the six provinces identified for this study.

A related area which might have some relevance to understanding inter-provincial differences in health care expenditures could be benefit rates paid to physicians for their services provided under the provincial medical care insurance plans. As can be seen from Chart 17 and Table 11, Nova Scotia has generally led the other five provinces in terms of average annual benefit rates, followed by Saskatchewan, Prince Edward Island, Newfoundland, and New Brunswick. As with many of the previous comparisons, there does not appear to be any specific relationship between average annual benefit rate indices and the percentage of GDP each province spent on health care. Nor is there much relationship between the benefit rates and the surgical rates for selected elective procedures. Except for Manitoba, however, there does seem to be a direct association between the physician-population and specialist-population ratios and the average annual benefit rate indices for the provinces. This relationship is direct for Nova Scotia — highest benefit rate index and highest physician- and second specialist-population ratios, and for New Brunswick — fifth lowest benefit rate index and fifth lowest physician- and fourth lowest specialist-population ratio.

What about hospital utilization and expenditures among these six provinces? Table 12 shows the ratios of hospital expenditures per capita, per bed, per patient-day, and per separation in 1984/85 for each of the provinces being examined. It will be recalled from the earlier section on total health expenditures that total per capita health expenditures were highest in Manitoba followed by Saskatchewan, Nova Scotia, New Brunswick, Newfoundland, and Prince Edward Island. The ratio of hospital expenditures

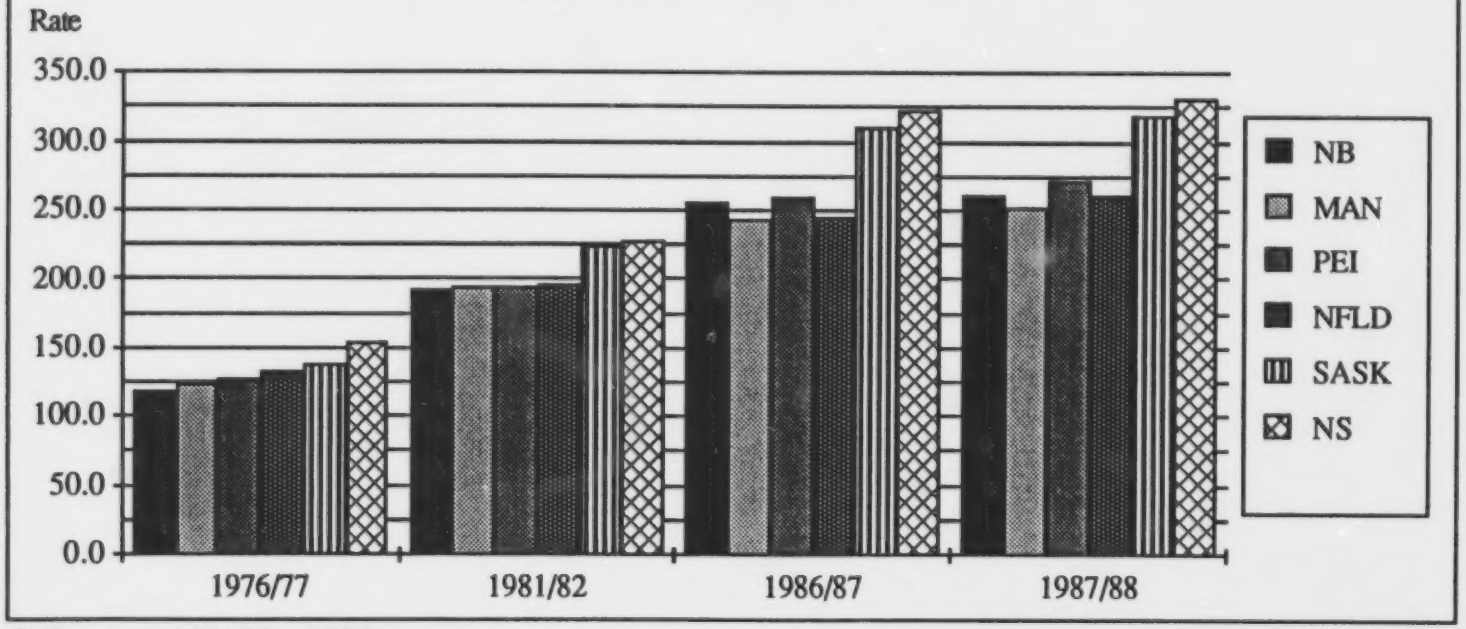
Chart 16
Rate of Office Visits to Physicians per 1,000 Population
Canada, Eastern and Western Regions, 1980/81 - 1985/86



Western Region: Man., Sask, Alta, B.C.
Eastern Region: Nfld, PEI, NS, NB.

Source: see Table 10

Chart 17
Average Annual Benefit Rate Indices
By Selected Fiscal Years 1971/72* - 1987/88
Atlantic Provinces, Saskatchewan and Manitoba



* Base year 1971/72 = 100.0

Source: see Table 11

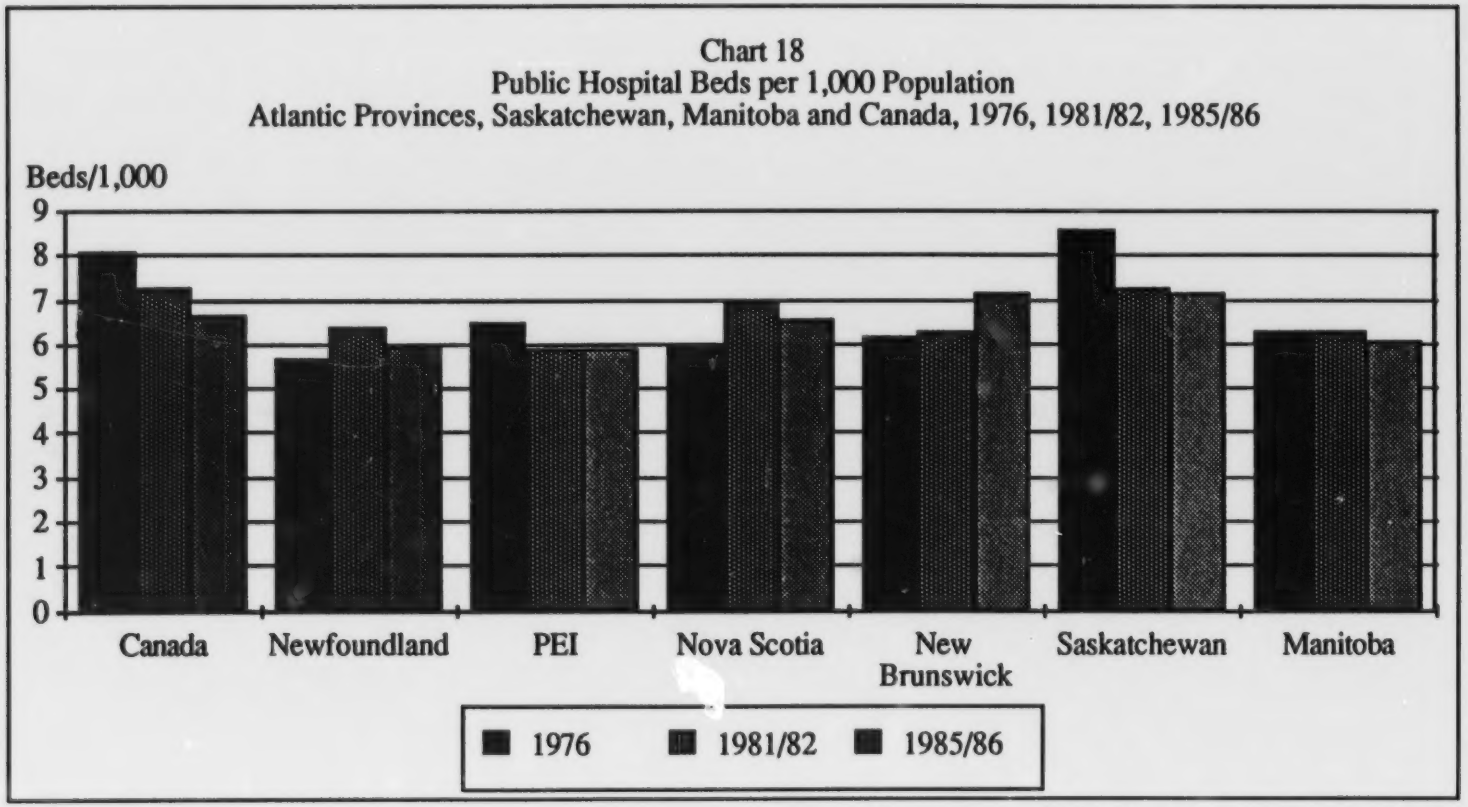
per capita followed a somewhat different trend: highest in Nova Scotia ($663), followed by Manitoba ($644), Newfoundland ($603), New Brunswick ($603), Saskatchewan ($529), and Prince Edward Island ($521). Hospital expenditures per patient-day ranged from a high of $440 in Newfoundland to a low of $329 in Saskatchewan; the Canadian average was $387. The ratio of hospital expenditures per bed followed a similar trend to the other cost ratios: Manitoba had the highest hospital expenditures per bed ratio ($103,829), followed by Nova Scotia (($101,531), Newfoundland ($99,659), Prince Edward Island ($89,247), New Brunswick ($84,528), and Saskatchewan ($74,105).

Examination of these data suggest that there is a relationship between costs per separation and average length of stay (ALOS). Between New Brunswick and Manitoba and Prince Edward Island, there is a difference of almost three days in ALOS, again with the lower average being in Prince Edward Island. Hospital costs per separation are almost 60 per cent higher in Manitoba and 40 per cent higher in New Brunswick than in Prince Edward Island. In Nova Scotia where ALOS is about one and a half days more than in Prince Edward Island, costs per separation are 50 per cent higher. Given that there are differences in medical practice patterns, that there may be inappropriate use of certain surgical procedures (e.g., Caesarian sections as opposed to normal deliveries, cardiac-by-pass surgery as opposed to drug therapy), that savings may be realized from alternative delivery and reimbursement mechanisms, it is possible that significant economies could be realized by reducing lengths of stay in hospitals. Before embarking upon this route, however, it would be advisable to examine the case mix of these hospitals: ALOS may be higher in some areas if hospitals are providing sizeable amounts of long-term care. This situation may exist because of lack of viable alternatives to better provide long-term care services.

As was noted earlier in looking at surgical rates for selected procedures, differences were observed in medical practice patterns among the six provinces. These variations may help explain the variations in hospital expenditures. It also is very likely that differences in hospital costs per capita, per bed, per day, and per separation are due to differences in the number of beds per capita, use of services, occupancy rates, separation rates, and lengths of stay.

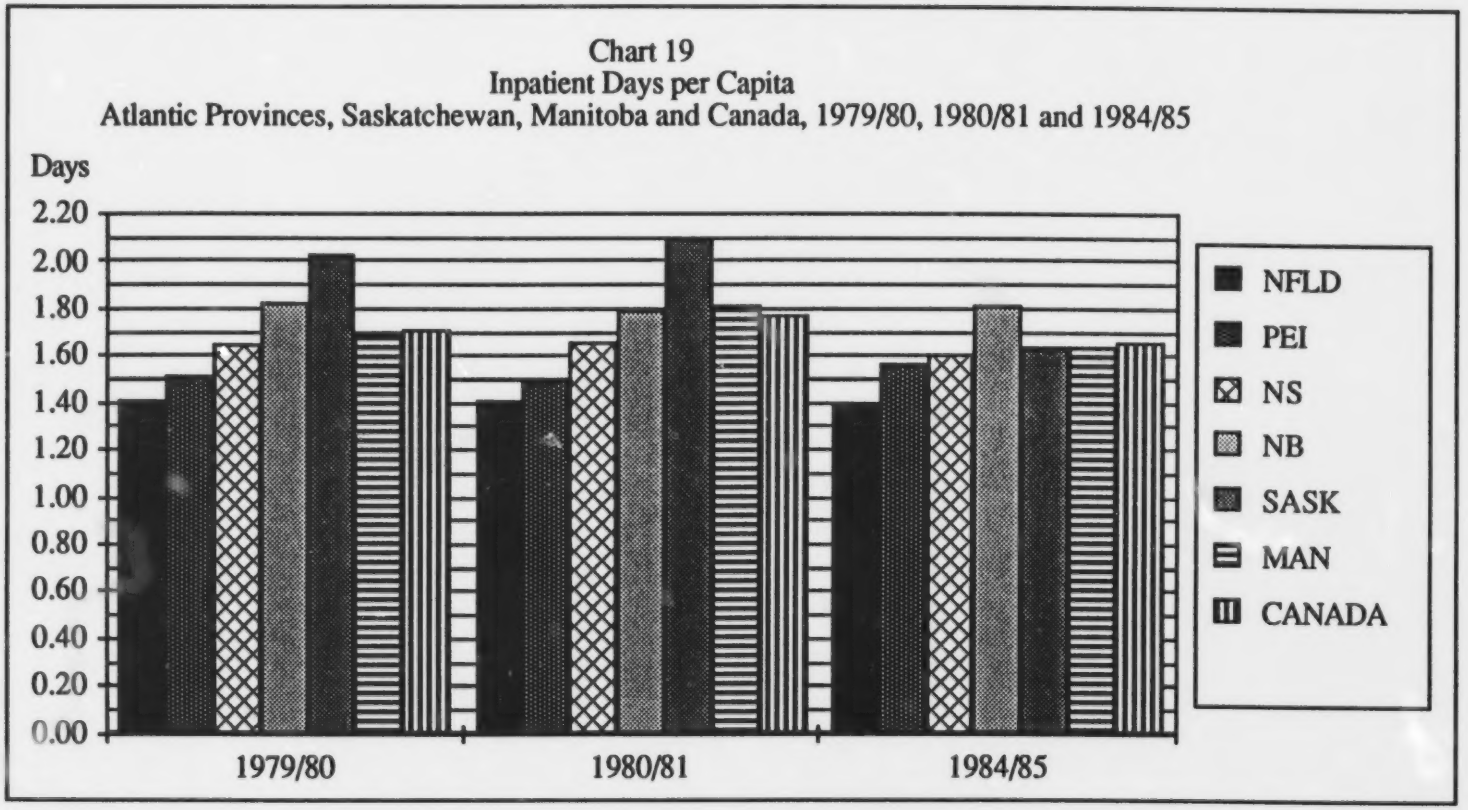
In Chart 18, it can be observed that the number of hospital beds per 1,000 population has been decreasing in Canada, Manitoba and Saskatchewan while fluctuating, or increasing in the Atlantic provinces. In 1985/86, beds per 1,000 population ranged from less than six in Prince Edward Island to over seven in New Brunswick and Saskatchewan. As is shown in Chart 19, per capita use of these hospital beds also varies from province to province. Utilization in

Chart 18
Public Hospital Beds per 1,000 Population
Atlantic Provinces, Saskatchewan, Manitoba and Canada, 1976, 1981/82, 1985/86



Source: see "Table for Chart 18," Appendix B

Chart 19
Inpatient Days per Capita
Atlantic Provinces, Saskatchewan, Manitoba and Canada, 1979/80, 1980/81 and 1984/85



Source: see Table 13

New Brunswick. Not surprisingly, there appears to be a strong association between the availability of beds and their use.
Given the number of hospital beds, per capita use of services determines the occupancy rate. The latter two items also depend on the separation rate and on average length of stay. Hospital costs can be affected by variations in these parameters.

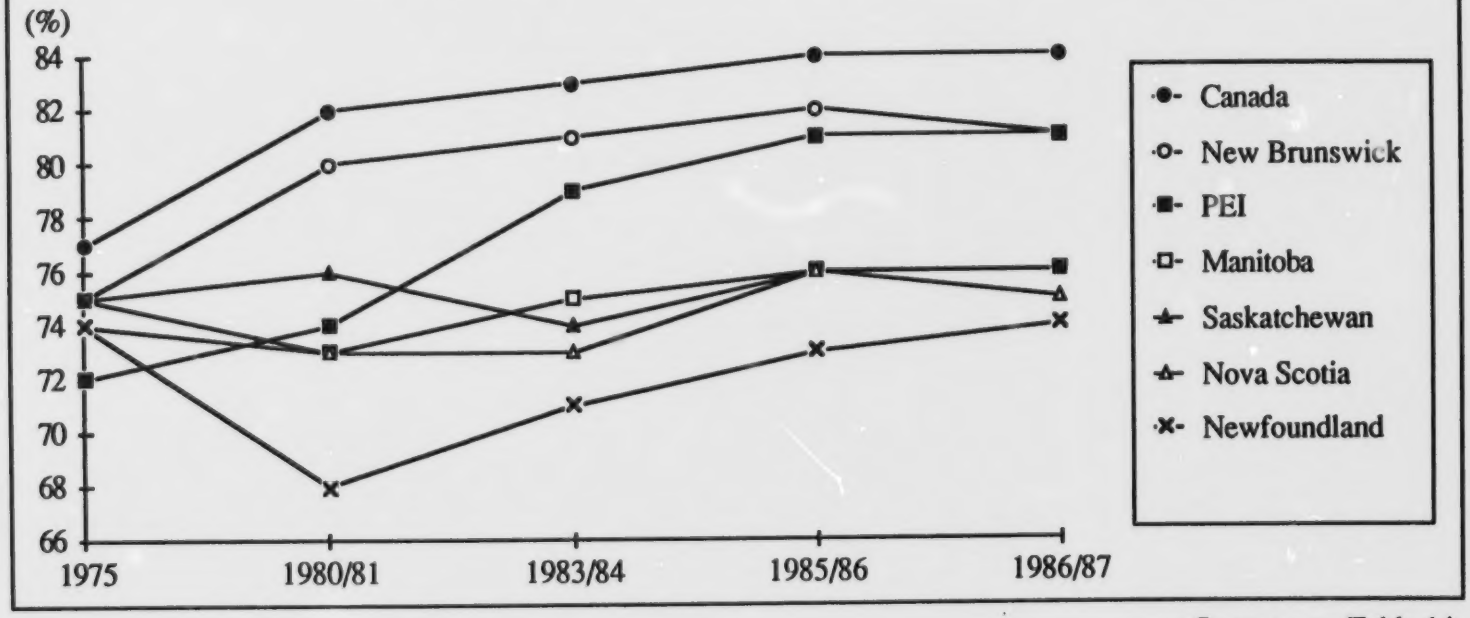
Chart 20 shows occupancy rates for the six provinces examined in this study. Generally in Canada, occupancy rates have been increasing. As with the other indicators examined, there is variation in these rates within a province over time, as well among the six provinces. While occupancy rates for Canada as a whole have been higher than those for the six provinces, rates have been higher in New Brunswick and Prince Edward Island than in the other four provinces.

With respect to the rate of separations per 1,000 population, Chart 21 indicates that, by and large, they have been falling over time. In 1984/85, the most recent year for which comparable provincial data exist, each of the six provinces had separation rates higher than the Canadian average (145.6). Going from high to low were Saskatchewan (202.8), Prince Edward Island (202.4), Nova Scotia (171.2), New Brunswick (170.0), and Newfoundland (156.7) and Manitoba (154.3).

While the provincial separation rates have exceeded the national average, the reverse is observed for average length of stay (ALOS) estimates. Unlike many countries, ALOS' in Canada have not been declining. They have either increased slightly or remained relatively stable. Chart 22 indicates that, in 1984/85, New Brunswick (10.7 days) had the highest ALOS, followed by Manitoba (10.6), Nova Scotia (9.4), Newfoundland (8.9), Saskatchewan (8.1), and Prince Edward Island (7.8). All were lower than the Canadian average of 11.4 days.

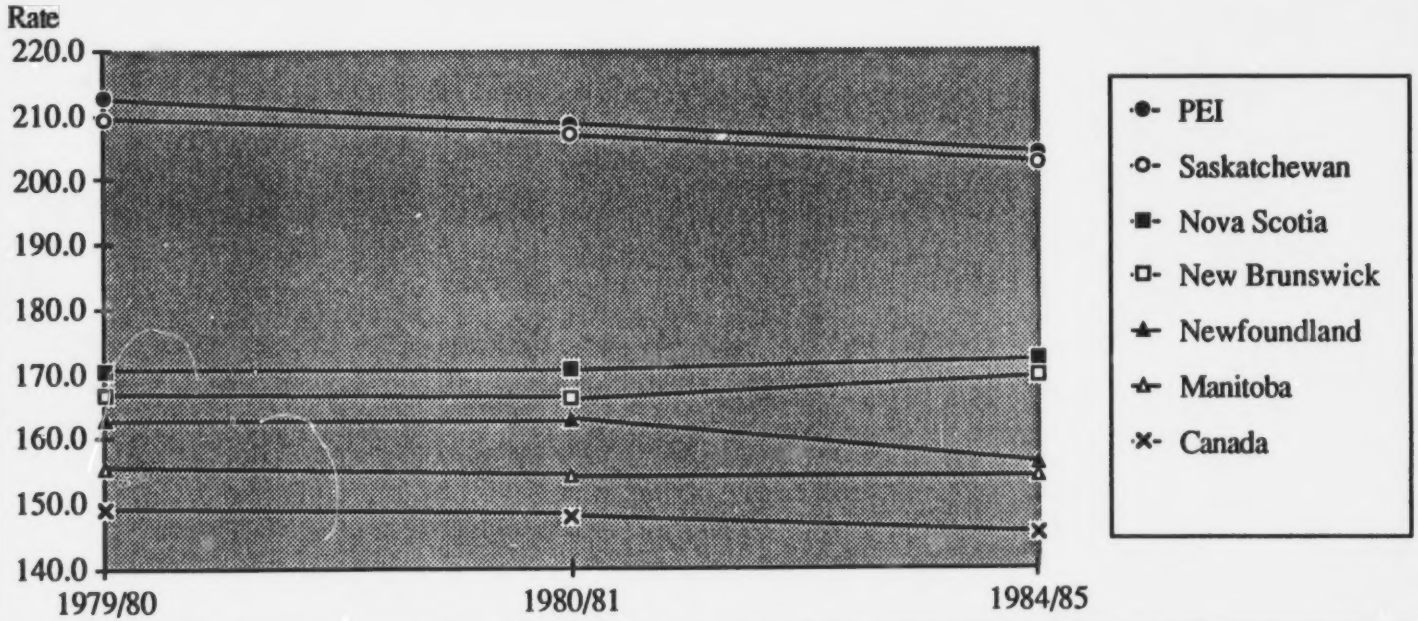
There does appear to be a relationship between ALOS and the availability of beds. Generally the fewer beds per capita, the lower appears to be the length of stay: Prince Edward Island has the fewest beds per capita and also has the lowest average length of stay in those beds; New Brunswick, on the other hand, with a greater number of beds per capita, has the highest ALOS. It should be cautioned, however, that this association may not hold if the casemix of the hospitals has a high proportion of longer-term care patients.

Chart 20
Occupancy Rates of Public Hospitals
Atlantic Provinces, Saskatchewan, Manitoba and Canada
Selected Years, 1975 - 1986/87



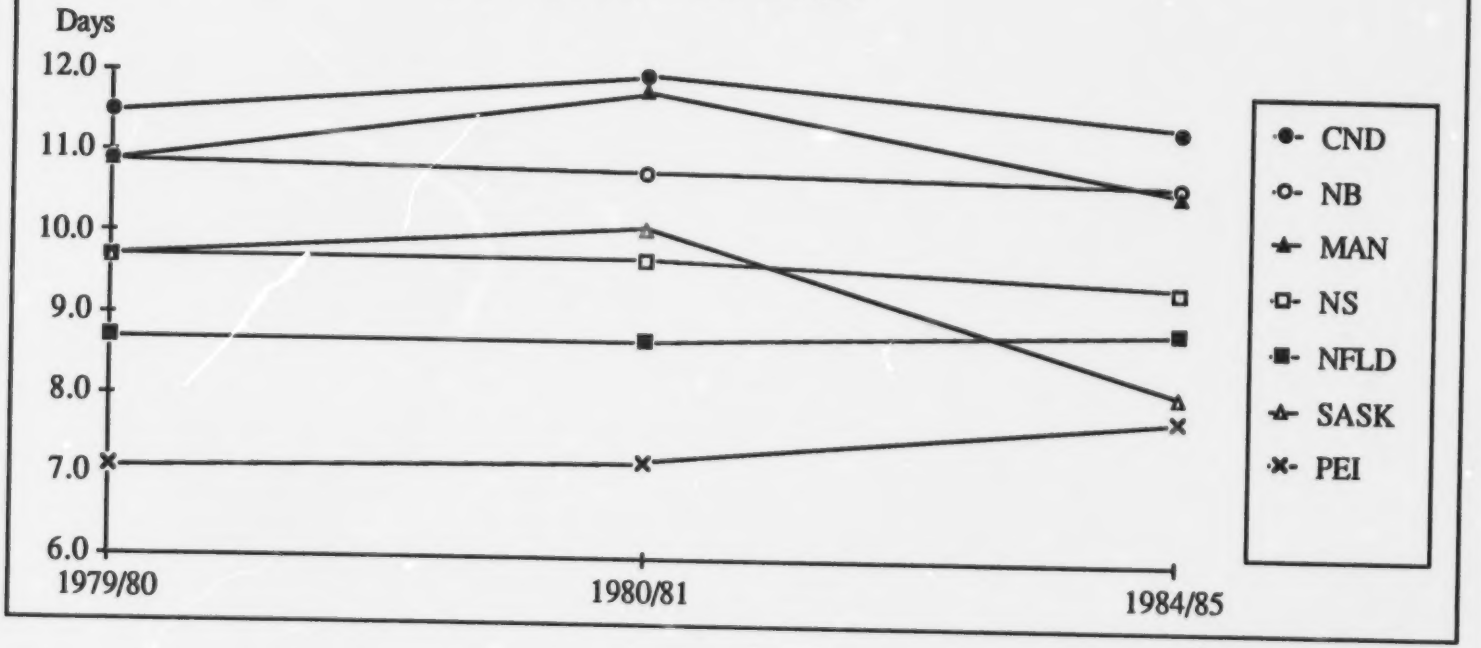
Source: see Table 14

Chart 21
Separations per 1,000 Population
Atlantic Provinces, Saskatchewan, Manitoba and Canada, 1979/80, 1980/81 and 1984/85



Source: see Table 13

Chart 22
Average Length of Stay
Atlantic Provinces, Saskatchewan, Manitoba and Canada
1979/80, 1980/81 and 1984/85



Source: see Table 13

Summary

When one considers the composition of the population, differences in "health status," and the utilization of both medical and hospital services, it appears that there is no simple explanation for the differences which exist in health expenditures in the six provinces identified for examination in this study. With respect to population growth and composition, having greater proportions of senior citizens does not seem to be a major factor accounting for the growth and differences in health expenditures. Nor do differences in health status of the population help significantly in explaining inter-provincial differences in health expenditures. Unfortunately, with existing data, it is very difficult to create the types of health status indicators one requires in order to make good comparisons.

With respect to utilization of medical and hospital services, we found substantial variations in such items as surgical rates for selected elective procedures; supply of physicians; use of medical services; average annual benefit rates paid to physicians under Medicare; hospital expenditures per capita, per bed, per patient-day, and per separation; availability of hospital beds; use of hospital beds; occupancy rates; separation rates; and average length of stay (ALOS). In provinces which were maintaining a lower percentage of GDP going to health care, there appears to be a visible shift in the resources being allocated from hospitals to other forms of health care delivery, perhaps in recognition of changing age distributions and health needs which could be handled better in non-acute care facilities. We also observed a relationship between average annual benefit rate paid to physicians and the overall physician- and specialist-population ratios. Of course, Roemer's Law was confirmed, i.e., there is a direct positive relationship between the availability of hospital beds and their use. Finally, there does appear to be an association between average length of stay and the availability of beds.

It is clear that while there are differences in health expenditures across the six provinces, these differences cannot be fully explained on the basis of population composition, variations in health status, use of medical and hospital services, differences in medical practice patterns, nor on the basis of differing health system characteristics. A recent OECD study of 15 industrialized countries found that the aging of the population was not a major factor in understanding differences in expenditure patterns, but that factors related to utilization and intensity of service were more important. That it is difficult to isolate specific areas of concern simply reflects the fact that the health care system is a complex web of interrelationships among decision-makers, financing entities, reimbursement arrangements, and institutional structures, relationships which are difficult to define and measure. Crude measures of availability such as physician population or bed

population ratios do not account for intensity of service, and hence, are inadequate measures of input. Equally lamentable is the absence of good output or outcome measures for the health care sector. As was suggested in the introduction to this study, if increases in health expenditures are commensurate with increases in output, i.e., health status, then from the economist's perspective, society is getting "value for the money." Unfortunately, in the absence of these good outcome measures (and the necessary data), judgements about relative efficiency or effectiveness across provinces cannot be made easily. The next section of this study deals with various aspects surrounding the issue of trying to measure effectiveness of health expenditures.

IV. MEASURING EFFECTIVENESS

Defining and Measuring Health

Important questions surrounding health care expenditures which, regrettably, are not asked often enough are: what do we get for our dollar? Would spending more (less) money give us additional (fewer) benefits? Could we spend the money better elsewhere? Do we use our resources effectively in the health care sector? The truth is that we are hard pressed to tell if the 8.5 per cent of national GDP which is allocated to health care is being spent effectively.

There are a few important reasons for this situation. One of the important factors relates to the fact that we have not established explicit health goals, objectives, and strategies. What do we really want during the next few decades? Increased life expectancy? Further reductions in deaths and serious institutional morbidity? Improvements in quality-adjusted life expectancy? Continued access to a minimum level of hospital and medical services? With specific goals and objectives in hand, then perhaps we could begin to consider "health expenditures" for what they really are, namely, the means to achieving certain outcomes or outputs.

Another important, but greatly interrelated element relates to what we mean by health outcome or output. With an accept definition of "health," analysts and policy makers would be in a better position to evaluate the effectiveness of health expenditures. Indeed, defining health is no easy task, for an individual's health status can depend upon a number of different factors, namely, lifestyles and behaviours, environmental aspects, biological elements (genetic endowment), and the biomedical knowledge applied through existing public health systems.

The vast majority of our existing measures of health have been derived through the "medical model." Here, health is regarded as the absence of abnormalities in pathological function caused by specific diseases. This has resulted in the development of what we consider as the "traditional" health indicators such as life expectancy at birth, mortality rates due to specific and detailed causes, infant death rates, causes of hospitalization, and infectious diseases. A more recently-developed indicator of this type is the "potential years of life lost" (PYLL) measure, which is particularly useful when one considers premature deaths. As long as illnesses are of the infectious type or are acute, medical type conditions, these indicators are sufficient.

However, for many of todays "health" problems the narrow definition is inadequate. Many of the conditions which show up at the doors of the existing system have their genesis in lifestyle behaviours, environmental causes, and genetic factors. The definition, and hence, solutions, have to be

broad enough to encompass many of these socio-physical factors. During the past couple of decades, health and health status have been defined more and more in terms of sets of characteristics which attempt to measure people's physical and emotional dysfunctional levels. These characteristics include problems in activities of daily living (e.g., eating, dressing, mobility, etc.), mental disorders, etc. Specific indicators have been developed for physical health, mental health, social health, general health perceptions, eating habits, diet, medication, chronic illness, stressful life events, etc. From these types of measures, one can obtain indicators such as "disability days," "index of health expectancy," "leading causes of activity limitation."

We do not seem to be too far away from the time when data on expected years of healthy life and expected years of disability can be linked to causes of death and disability. This will represent a crucial step in establishing the usefulness of social indicators for policy planning and evaluation. A combined analysis taking into account both causes of death and causes of disability would allow the ranking of health problems according to their overall impact on health expectancy, including loss of functional ability as well as loss of life itself. This could very well lead to major changes in the relative priority accorded to each cause, with all the implications for health planning and policy making that would entail. Using this type of "combined" approach, researchers in Quebec made a number of interesting observations.[1]

For example, diseases of the circulatory system were still the most important ones with which both men and women have to contend. For men, accidents and violence moved to second spot (from third), ahead of such illnesses as cancer and diseases of the respiratory system. Looking at illnesses in this way, it was further seen that for men diseases of the musculoskeletal system (e.g., arthritis and rheumatism) which are not major causes of death but which were the leading cause of activity limitation, take fourth spot (after cancer), and for women were in second place.

As noted earlier, most of the health status measures used and reported in the health care system focus on disease and ill-health, rather than on the positive aspects of well-being. In part, this likely is due to the fact that the majority of readily available data tell us only about the final end products in the health care system, i.e., institutional morbidity and mortality. Furthermore, these data do not provide precise information on the effects of specific policy interventions. Yet, in spite of these short-comings, they do represent some measure of the "levels" of health enjoyed by Canadians. They are useful for describing disease and mortality patterns, and they show which causes are responsible for the greatest burden of ill-health. They may even provide some general insights into resource needs.

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1 Dillard, Sylvie (1982), *L'Espérance de vie en bonne santé au Québec*, Conseil des affaires sociales et de la famille, Québec.

Relationship Between Health Expenditures and Health Status

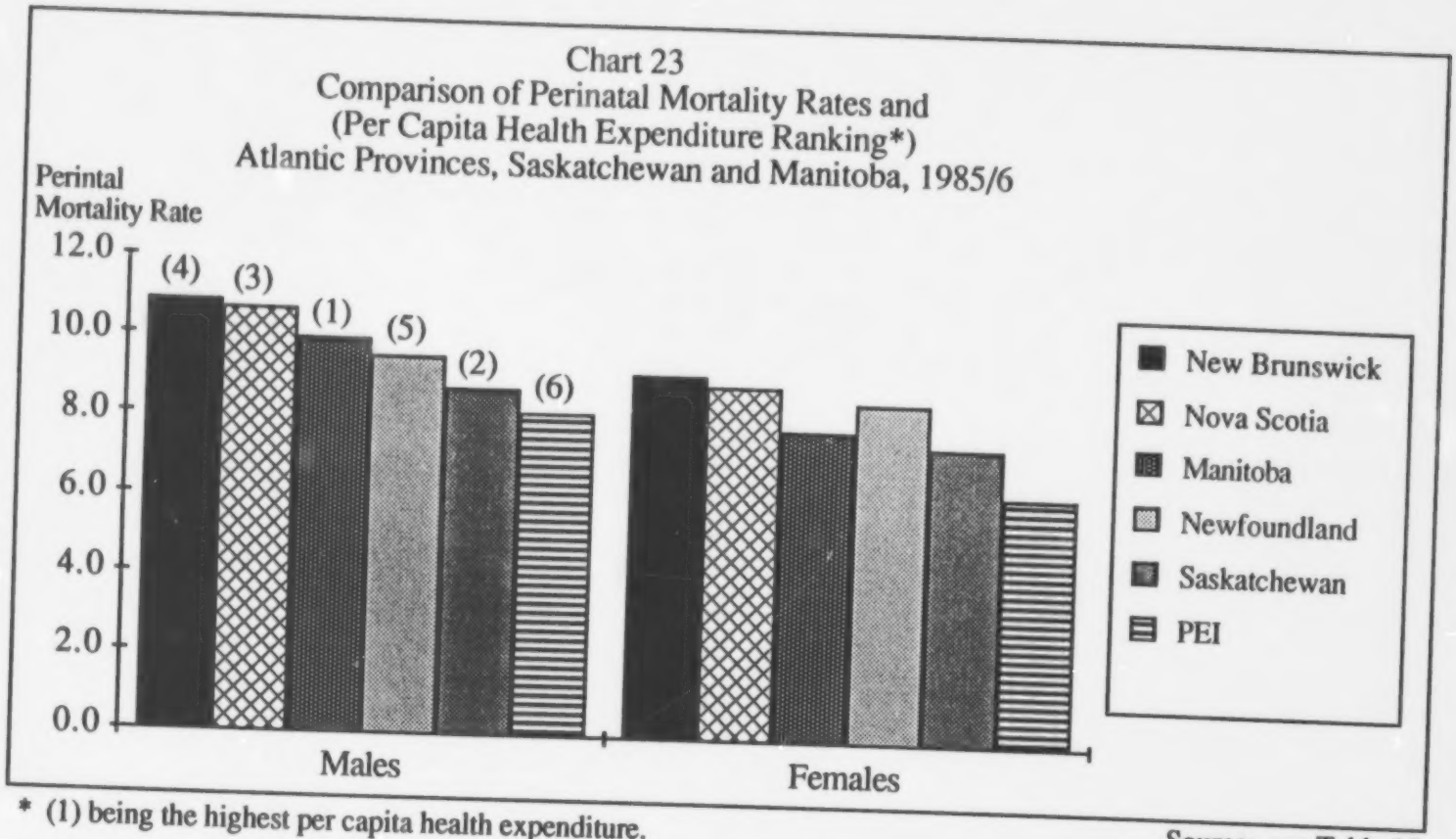
In the previous section of this report, there was an overview examination of the possible relationship which may exist between changes in health status and changes in health expenditures.

It is quite obvious that infectious diseases have become a minor problem, and with increased life expectancy chronic diseases have become the most prevalent causes of death. Many of the traditional morbidity and mortality indicators suggest that there is little which conventional medical interventions can do to extend life expectancy much beyond what it is now. Most mortality and disability are due to chronic illnesses, the causes of which little is known.

Certainly, gains in life expectancy at birth have not matched increases in the proportion of GDP spent on health care services. Between 1966 and 1980-82, life expectancy for Canadian males increased about 6 per cent and for Canadian females the increase was about 5 per cent. Increases in life expectancy in each of the provinces considered in this study were in this magnitude. During the same period of time, health expenditures as a percentage of GDP increased about 35 per cent. For many years of this period there was relative stability in the proportion of GDP being spent on health care. This comparison shows clearly that for highly developed countries, life expectancy as a measure of health status is almost meaningless.

Another traditionally used health status indicator is infant death rates. Usually one can find an inverse relationship between per capita health expenditures and infant mortality rates for males and females. For one thing, areas with higher levels of per capita health expenditures also have higher per capita GDPs. It might be expected, then, that higher standards of living would prevail. Also, provinces which have greater spending on health care might have available technologies such as neo-natal intensive care units to assist in increasing infant survival rates. Furthermore, it might also be expected that these higher spending provinces might have better prevention programs. When perinatal mortality rates for males and females in each of the six provinces are compared to their per capita health expenditures, one does not find the expected relationship, but rather a direct association between the two indicators (see Chart 23 and Table 15). Manitoba, with the highest per capita health expenditures, has the third and fourth highest perinatal mortality rates for females and males respectively. Prince Edward Island, on the other hand, has both the lowest per capita health expenditures and lowest perinatal mortality rates. Again, given the nature of health problems today, perhaps the rate of infant mortality is an inappropriate indicator of health status. Certainly, this seems to be the situation when one considers that life expectancies in all of these provinces are relatively high.

Chart 23
Comparison of Perinatal Mortality Rates and
(Per Capita Health Expenditure Ranking*)
Atlantic Provinces, Saskatchewan and Manitoba, 1985/6



* (1) being the highest per capita health expenditure.

Source: see Table 15

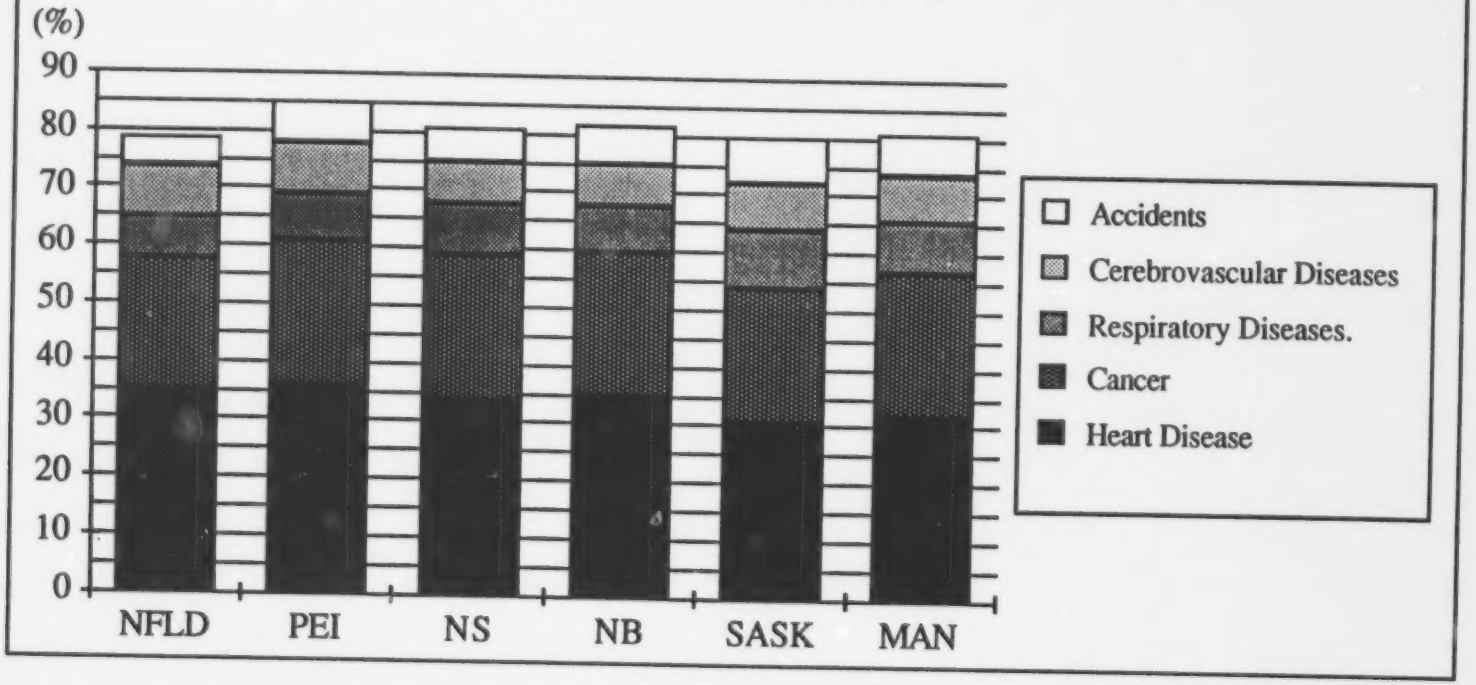
Using causes of death as an indicator of health status, it is observed that in each of the provinces in this study, the five major causes of death are heart disease, cancer, cerebrovascular diseases, respiratory diseases, and accidents (see Chart 24 and Table 16). For many of the dominant lethal conditions in each of these categories, severe chronic conditions such as hypertension, mental illness and depression, arthritis, etc., which are usually non-lethal, do contribute to functional disability, and in the case of hypertension, to death from these causes.

In a rather simplistic comparison of the ranking between per capita health expenditures and the major causes of death, further inconclusive results appear. For instance, Table 17 shows that Newfoundland ranks fifth in per capita health expenditures and has some of the lowest death rates with respect to heart disease (males), cancer, accidents and respiratory diseases. An association one might expect to see does show up in Prince Edward Island: this province has the lowest per capita spending on health care, and ranks either at or close to the top in the rankings of death rates due to heart disease (males), cancer, and cerebrovascular disease. Another peculiar relationship exists in Nova Scotia which has the third highest per capita spending on health care, but also has some of the highest death rates due to cancer, heart disease, and respiratory diseases. These three major causes of death accounted for almost 70 per cent of all deaths in Nova Scotia in 1986. Similarly, New Brunswick ranks fourth in both per capita health spending and high in death rates due to cancer (females), heart disease, and accidents. Saskatchewan also has mixed findings. It has the second highest per capita health spending, and shows the lowest rates due to cancer and heart disease. On the other hand, Saskatchewan ranks first in death rates because of respiratory diseases (females) and accidents. Manitoba,with the highest per capita health expenditures, generally has the third or fourth highest death rates among these five major causes.

Comparing the regional disparities in risk of premature death with per capita health expenditures reveals that, except for Saskatchewan which has the lowest rate of premature death, the loss to society of those who died at younger ages because of such causes as heart disease, car accidents, suicides, and cancer does not seem to be affected by the amount of per capita spending on health care. Chart 25 shows that while Saskatchewan has the second highest per capita health spending and the lowest PYLL, provinces such as Nova Scotia and New Brunswick, which follow Saskatchewan in per capita health expenditures, have 16 and 12 per cent greater (respectively) premature deaths than Saskatchewan. The lowest per capita health spender, Prince Edward Island, only had about 2 per cent more premature deaths than Saskatchewan. Manitoba had almost 8 percent more premature deaths.

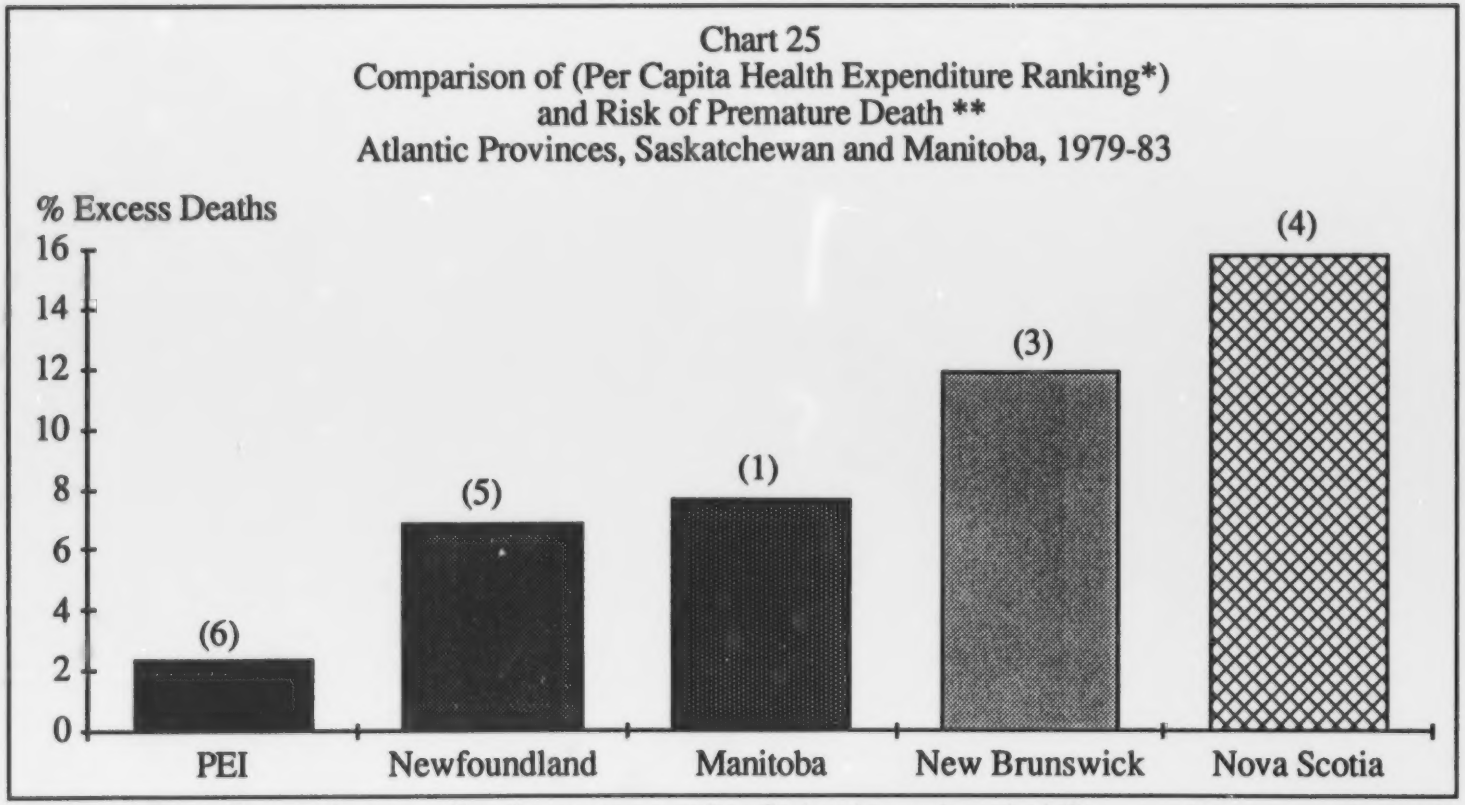
Although there are not a preponderance of population-based health status indicators available, the ones which have been developed at various points in

Chart 24
Percentage Distribution of Major Causes of Death
Atlantic Provinces, Saskatchewan and Manitoba, 1986



Source: see Table 16

Chart 25
Comparison of (Per Capita Health Expenditure Ranking*)
and Risk of Premature Death **
Atlantic Provinces, Saskatchewan and Manitoba, 1979-83



* With (1) being the province spending the most per capita; Saskatchewan is ranked (2).

** Risk of premature death relative to Saskatchewan; province at greatest risk = Nova Scotia.

Source: see Table 18

time during the past few years, also reveal some intriguing findings, particularly when related to per capita health spending. Of the six provinces in this study, except for Manitoba, those with the highest levels of per capita health spending had the highest proportion of their respective populations who were disabled (see Chart 26).

One associational relationship which exists in the six provinces is that between per capita GDP and the average number of alcoholic beverages consumed per week by regular drinkers. Table 20 shows that in those provinces with higher levels of GDP per capita, generally, current alcohol beverage drinkers consume more drinks during a given week. No causality can be established here, but it also is observed that there is a direct relationship between per capita GDP and per capita health expenditures.

Overall, then, the results of comparisons of health expenditures to various traditional health status indicators should not be too surprising. Given the numerous economic, medical, social, and historical factors which affect health, as well as the aggregate nature of the cause of death categories, a much more sophisticated "model" and a much more detailed analysis would be needed to systematically and scientifically explore these relationships. This reaches well beyond the scope of this study. Nonetheless, it should be apparent, at least intuitively, that societal lifestyle, environmental, and biological factors do impose significant economic and social costs on the health and broader socio-economic systems. This aspect is examined later.

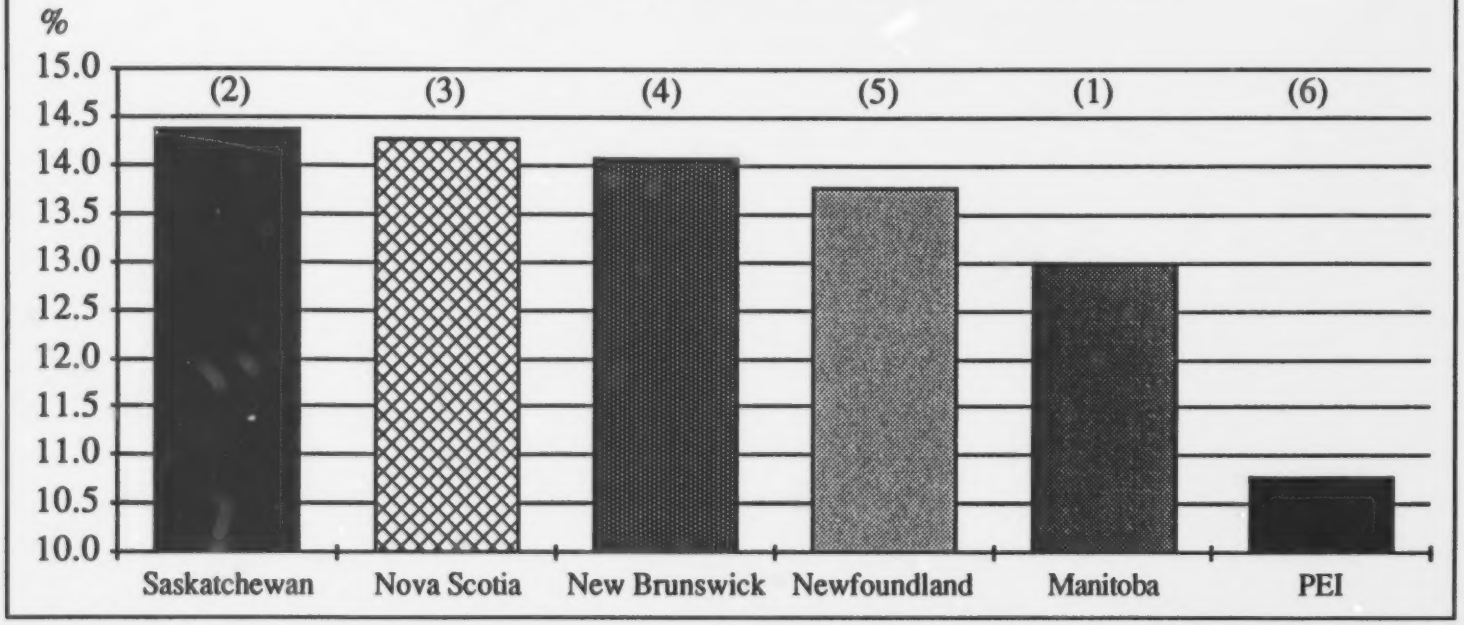
Present Situation Regarding Health Status

As was noted earlier, our health status is determined by a number of socio-demographic factors including ethnicity, general, and social class. As portrayed in the following diagram, there is an interaction of several factors which affect an individual's health and quality of life.

The indicators we use most frequently to study the health of Canadians, such as those discussed earlier, are derived from government vital statistics and hospital administrative data. Institutional statistics, while presenting information on "ill health," are not as reflective of the health status of the population as are mortality or population-based statistics. Such things as the availability of facilities and services, the physician's decision to hospitalize and, if so, the length of hospitalization time required, all affect the data.

The existing and limited data and indicators of health status present us with a mixed bag of information. We are living longer, but not necessarily experiencing reduced periods of disability. The advent of diseases related to our lifestyle and environment are major problems with which we have to contend: heart disease, cancer, accidents, and mental illness. As a result of smoking and alcohol consumption trends, it appears that certain traditionally

Chart 26
Comparison of (Per Capita Health Expenditure Ranking*)
and Disability Rates
Atlantic Provinces, Saskatchewan and Manitoba, 1983/84

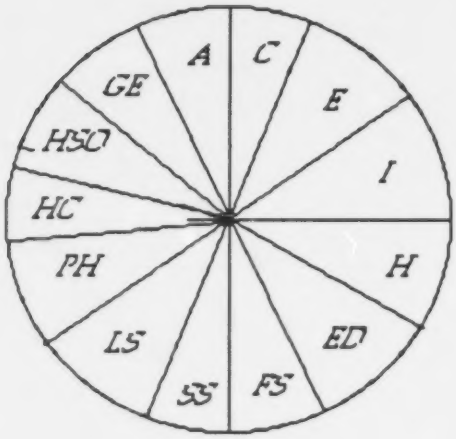


* (1) being the greatest amount spent per capita.

Source: see Table 19

"male" diseases (especially some cancers and heart disease) could become increasingly common among women.

DIAGRAM 1: DETERMINANTS OF HEALTH STATUS



GE	:	individual's genetic endowment
A	:	accidents (home, occupation, recreation)
C	:	catastrophic events affecting large segments of the population
E	:	environment (geographic, physical, biological, and technological)
I	:	income (wealth)
H	:	housing
ED	:	education, attainment
FS	:	family structure
SS	:	social structure
LS	:	lifestyle
PH	:	public health and sanitation in the community
HC	:	existing health care system (personal health care)
HSO	:	health status of others

Future Requirements

Experiences in other countries, and in some Canadian provinces, indicate that health needs must be assessed, that goals, objectives, and priorities have to be established, that progress has to be monitored, and that programs must be evaluated. Statistical and epidemiological data are required in the implementation and management of health strategies, and to obtain indicators to monitor and evaluate their effectiveness. We must have relevant statistical information which faithfully reflects both the health problems and health care needs of the population, and which can meaningfully be interpreted and converted into action.

Certainly, average life expectancy has been increasing in Canada. But this does not tell us much about the amount of sickness and disability in the population. To help improve our ability to plan better for the future, we need consistent time-series data which will show us the degree of short- and long-term disability in the non-institutionalized Canadian population, and tell us how effectively the existing health care system does or does not sustain people as functioning member of society.

Cost of Illness Studies

Given the existing state of the art vis-à-vis health outcome measures and any attempts to evaluate effectiveness of health care expenditures, is it possible to assess the economic and social burden of illness in order that we can evaluate health care expenditure policies? It is important to evaluate the aggregate cost of health care not only because of the obvious monetary considerations, but more importantly because of the questions of social priorities and human investment. Cost of illness studies does represent one reasonable approach in this regard.

Cost of illness studies, which often are used in cost-benefit and cost-effectiveness analyses, take into consideration a wide range of costs and benefits. Yet, as practitioners of these studies in the United States and some European countries have come to realize, the existing methodology and data allow estimation of only a portion of all costs incurred as a result of illness and disease. The core of disease costs that are common to cost of illness studies are listed below.

Direct Costs

- hospital costs
- outpatient clinical costs
- other institutional costs (e.g., nursing home care)
- home health care costs
- physicians' and other professionals' costs

- drugs and medical supplies
- special prosthesis and appliances
- other costs not included elsewhere.

Of course, for each disease condition under consideration, overhead costs for items such as heat, electricity, rent, administration and maintenance, and capital should be allocated to the program in question. Fortunately, on the one hand, the data for most of these categories are compiled by Health and Welfare Canada. Regrettably, on the other hand, these costs are not allocated or assigned by disease category. The other major component in the direct costs associated with a given program are the costs borne directly by the patients and their families. Included here are such things as:

- costs of transportation to hospitals, clinics, physicians, etc.
- any extra expenditures for household help, special diets, special clothing, medication, items for rehabilitation, alterations of property (e.g., ramps for wheelchairs, widening of entrance ways, etc.)
- vocational, social, and family counseling
- retraining or re-education
- volunteers
- services for voluntary organizations.

Indirect Costs

There are production losses associated with a given health care program which should be considered as well. These are the indirect costs resulting from losses in output as time is lost from work and in keeping house because of morbidity and premature mortality. The measure of output loss is earnings and the imputed market value of unperformed housekeeping services. Illness may also adversely affect productivity in addition to causing time lost from work. Other related indirect costs include the time spent visiting health care providers and hospitalized persons by patients and/or family members, and time lost from work by family members when someone in the family is ill.

An important aspect of cost of illness studies is that they attempt to evaluate as completely as possible all costs associated with an illness or disease.

A major limitation of the data in Canada is that they do not relate directly the costs associated with treating specific illnesses in hospitals or other institutions. As a result, one is forced to develop proxy means of deriving the desired expenditure breakdowns. The approach which has to be taken is to allocate expenditures derived from the Annual Returns of Hospitals (Forms HS-1/HS-2) at Statistics Canada by sex and age groups to a diagnosis in proportion to the number of days of care attributable to the diagnosis (which are derived from the hospital admission/separation data, also available at Statistics Canada). In this way, one can obtain an estimate of total hospital expenditures distributed by age and sex for the major ICD classifications matched by hospital. Data derived in this way can be aggregated to obtain provincial totals.

A key difficulty with this approach, however, is the need to rely on average provincial hospital costs per patient-day. Per diem hospital costs at the provincial level assign equivalent weights to each day of care in each province. As such, they do not allow for a distinction among various diagnoses, nor for varying treatment costs for a given diagnosis from one hospital to the next. One way to obviate this aggregate is to use hospital-specific per diem costs. Indeed, while this process permits the per diem rate of hospital expenditures to more realistically reflect varying institutional scenarios, e.g., active treatment hospitals have higher per diem rates than extended care institutions, thus giving some degree of improvement over the province-wide measures, it does not address the potential reasons for these cost differentials. Nor does it facilitate costs to be deduced from a disease-costing perspective. Since Canadian data do not render linkage to obtain these hospital specific inpatient operating expenditures which would reflect diagnostic variability, we have to rely on the method outlined above to allocate gross hospital-specific costs by major diagnostic classification, and on the assumption that all days of care in a given hospital cost the same.

While costs of hospital care cannot be allocated directly to specific diagnoses, this analytical approach to hospital expenditures can be useful to planners and policy makers in the health care sector in determining priorities for health services and health services research. It will allow analysts to observe the financial impact of major leading disease categories, to determine the effect that aging of the population can have on expenditures, and to discern provincial variations for specific disease categories.

It seems clear, then, that one of the major reasons that cost of illness studies nor economic evaluations are not as predominant nor as effective as they might be, relates to the fact that the quality and availability of the necessary data are very inadequate. If there are problems in linking the researcher to decision-makers in the area of economic evaluation research, there are even greater problems in getting the producers and users of data together. Ever since the 1964 Royal Commission on Health Services (Hall Commission) there have been numerous recommendations on the nature and amount of data needed to be able to research various issues in health care. There have been sporadic responses to these various (and repeated) calls for more and better data, but overall the situation has not changed dramatically. Despite the on-going task forces, working groups, etc., which are continuing to cover old ground, it seems likely that the availability and acquisition of the appropriate cost and outcomes/output data will linger as major problems for the foreseeable future.

V. SUMMARY AND CONCLUSIONS

Before trying to draw conclusions and make recommendations, it is worthwhile highlighting again some of the major difficulties in attempting to develop policy in the health care domain. These are:

- We cannot adequately measure health outcomes and, as a result, we cannot assess effectiveness of health care expenditures;
- What we know about the appropriateness of medical care is very limited;
- Little good information exists on the behavioural factors associated with reimbursement, delivery systems organization, and supply response;
- As a result of the nature of health problems today, we cannot treat the health care system in isolation from social service systems, lifestyle and environmental factors, and as we are starting to learn, from genetic causes.

The results of this study raise more questions than answers, some of which are:

- How can we measure "value for money" in health care?
- Are there significant differences in health care expenditures associated with differences in health status?
- Which parts of the "system" are most cost-effective?
- What is the relationship between health care expenditures and increased demand, diffusion of new technologies, the way in which health care is financed, the supply of physicians? Which factors are most significant?
- How do we explain differences in the availability and use of hospital and physician services?
- Will increases in health expenditures or increases in expenditures in other areas provide the biggest payoff in terms of improving health status?
- Why do we not know more about the significant but very small group of people who consume the largest proportion of health care costs?

While precise answers cannot be provided to these questions, primarily as a result of the very complex web of interrelationships which exist both within and outside the system, we can provide some specific summary conclusions.

Health Care Expenditures and GDP

Generally, the provinces with higher per capita GDPs spend more per capita on health services. In 1985, the last year for which provincial disaggregations exist, the highest per capita health spending was in Manitoba, followed by Saskatchewan, Nova Scotia, New Brunswick, Newfoundland, and Prince Edward Island. The converse held for health expenditures as a percentage of provincial GDPs: Prince Edward Island was highest, followed by Newfoundland, New Brunswick, Nova Scotia, Manitoba and Saskatchewan. By and large, this means that the less well-off provinces are spending proportionately more on health care services.

Absolute Levels of Health Expenditures

Throughout 1970 to 1985, the national per capita health expenditures average was greater than each of the averages in the Atlantic provinces and Saskatchewan. Yet, the gap is narrowing. In 1985 per capita health care costs in Saskatchewan were 97 per cent of the Canadian average, followed by Nova Scotia at 91 per cent and New Brunswick at 86 per cent. The Manitoba average was 103 percent of the national figure.

Health Expenditures by Major Sector and Category

Between 1975 and 1985 the share of public expenditure has decreased in each of the Atlantic provinces – the decrease was most significant in Newfoundland and New Brunswick. Saskatchewan, on the other hand, showed a noticeable increase in the public sector share of health expenditures. One possible trend to monitor may be the increasing tendency toward private sector financing and ownership, particularly as many provinces try to reconcile access and new technologies with demographic changes and fiscal pressures,particularly if federal transfers are being reduced. The most significant growth in provincial government expenditures from 1974-75 to 1988-89 was noted in New Brunswick, followed by Saskatchewan, Nova Scotia, Manitoba, Prince Edward Island, and Newfoundland.

A recent trend which is appearing in some provinces, particularly in Saskatchewan, New Brunswick and Manitoba is a shift in the proportion being spent on hospitals to spending on other health care settings, e.g., homes for the aged, institutions for the physically handicapped, the mentally retarded, emotionally disturbed, children, alcoholics and drug addicts, and nursing homes.

The proportion of health care costs going for drugs increased noticeably in each of the Atlantic provinces between 1975 and 1985. Equally noticeable in these provinces was the significant decline in capital expenditures for construction, repair, machinery and equipment of health care facilities. Given this dramatic shift, the age of existing and amount of needed replacement capital equipment and physical plant could affect future health care expenditures, especially in the institutional sector.

Factors Related to Health Care Costs

(i) Population Composition

The relationship between the size of the population of age 65 and the percentage of GDP spent on health was not direct as might be expected, nor is the association significant. Provinces which have shown the greatest population growth rates, generally spend the highest percentage of GDP on health care.

It seems that provinces which have been shifting expenditures to delivery modes which are perhaps better able to deal with the majority of existing health problems are beginning to show increased ability to maintain control on costs.

(ii) Health Status

The proportion of GDP spent on health care shows no significant association with life expectancy in the six provinces, although the relationship is positive. The relationship between the percentage of GDP for health care and death rates shows almost no relationship.

With respect to potential years of life lost (PYLL) due to all causes of death, the relationship of the percentage of GDP spent on health and PYLL for females is inverse and significant; for males, the association is inverse and not significant.

The association between health risk behaviour, as shown by smoking behaviour, and percentage of GDP going to health services is significant but in the wrong direction for males, while for females the direction is right, but the association is not significant.

Overall, then, there does not appear to be any clear relationship between health status and the amount a province spends of its GDP on health services.

(iii) Utilization

Aside from Prostatectomies, where the relationship between surgery rates and percentage of GDP spent on health care was inverse and significant, there was no strong association between health care spending and surgery rates for most of the selected elective procedures.

For all physicians and specialists, the association between the physician - population ratio and % of GDP allocated to health is insignificant, and the direction is inverse.

Strong inverse associations between the specialist - population ratio and surgical procedures were noted for Caesarian sections, and tonsillectomies. A strong direct association was found for gall bladder surgery.

No significant relationship was found to exist between the % of GDP spent on health care and the average annual benefit rates paid to physicians. Nor was there a strong direct relationship between the average annual benefit rates paid to physicians and the overall physician - population ratios.

On the hospital utilization side, the data suggest a strong relationship between the hospital costs per separation and average length of stay in hospital. Everything else being equal, if ALOS could be reduced one would expect to be able to bring down hospital costs per separation. Also, not of much surprise is the very strong relationship which exists between the availability of hospital beds and their use. Finally, there is a strong positive relationship between average length of stay and the availability of beds: the fewer the beds, generally the lower is ALOS.

(iv) Relationship Between Health Expenditures and Health Status

As a measure of health status, life expectancy in an environment such as Canada is almost meaningless. Certainly, gains made in life expectancy at birth have not been commensurate with increases in the proportion of GDP spent on health care services. In fact, we really should not be trying to relate these two variables.

The relationship between per capita health care expenditures and perinatal mortality rates for both males and females is insignificant and in the the wrong direction. Usually, one expects to find an inverse relationship between these two indicators.

Using causes of death as a health status indicator shows that the five major causes of death are heart disease, cancer, cerebrovascular disease, respiratory diseases, and accidents -- most of which are lifestyle or environmentally related. Indeed, there is one significant inverse relationship between per capita health expenditures and heart disease for males. For respiratory diseases and accidents among females, there is a significant relationship between deaths due to these causes and per capita health care expenditures; unfortunately, the association is direct rather than inverse as might be expected.

Nova Scotia, which has the third highest per capita health expenditures of the six provinces, also has some of the highest death rates due to cancer, heart disease and respiratory diseases; together these conditions account for almost 70 per cent of all deaths in Nova Scotia.

Saskatchewan has the second highest per capita spending on health care services and shows the lowest potential years of life lost (PYLL) for all causes of death. Nova Scotia and New Brunswick, which follow Saskatchewan in terms of per capita expenditures, have 16 per cent and 12 per cent more premature deaths than Saskatchewan.

A weak direct relationship exists between per capita health expenditures and rates of disability in the non-institutionalized population. However, a strong direct relationship exists between the average number of alcohol beverages consumed during any given week in a province and the per capita GDP in that province.

The general conclusion from comparing various health status indicators to health care spending is that determinants of health status is much more complex than the concept provided by the traditional medical model. While life expectancy has been increasing in each of the provinces, we still do not know very much about the amount of real sickness and disability in the population. In order for us to improve planning for the future, we require consistent time-series data which will show us the degree of short-and long-term disability in the Canadian population and which will allow us to measure the effectiveness of the existing health, social and related systems as they relate to being capable of sustaining people as functioning members of society.

Implications and Recommendations

In spite of difficulties associated with developing health policy and the numerous unanswerable questions which were noted at the beginning of this final section of the report, there still are some areas for which implications are evident and for which recommendations could be made.

Overall, based on the existing data and our analysis, there certainly does not appear to be any significantly compelling reason to increase the share of provincial GDP going to medical and hospital services under the present organizational and funding structures. Indeed, the nature of health problems in Nova Scotia now and for the foreseeable future suggests that there may be more forceful rationale for increased spending in areas such as prevention/promotion, housing, social services, the environment, income distribution, education, etc. However, because of the potentially disruptive consequences in the short-run, and until much better information is produced and made available, caution should be exercised when considering radical alterations to existing funding of health care services in Nova Scotia. If the captain of the large ocean liner wants to change its direction, warning of such intentions has to be made with sufficient lead time to allow the turn to be made smoothly.

Specifics

The first major specific implication of this research is the need for explicit goals, objectives and strategies for health and related services. Without some clear indication of what the Nova Scotia government wants for its population, e.g., improvements in quality of life, reductions in death and serious levels of disability, the "CATCH - 22" of the relationship between health expenditures and health status will not go away. Setting clear-cut goals and objectives for social spending is neither a luxury nor a game ... it is a necessity, particularly during the period of turbulence and fiscal difficulty in which we find ourselves. Nor is the task technically difficult to accomplish ... witness the efforts throughout Europe, the U.S., and some Canadian provinces, e.g., Quebec, Ontario and Alberta. The prime ingredient for action, of course, is political will. Given the emphasis which our politicians express, both to being responsive to real needs and to being fiscally responsible, undertaking a process to establish goals, objectives and strategies would appear to be a politically astute move.

It is recommended, therefore, that the province of Nova Scotia undertake to establish a set of explicit goals, objectives and strategies for the health of its residents. This could be regarded as an activity to be accomplished during the medium term.

A second specific implication of this study related to the average length of stay (ALOS) in hospitals. Given the significant relationship between average length of stay and the costs per separation in hospitals, explicit efforts should be made to reduce ALOS noticeably. Indeed, in provinces where ALOS is lower than in Nova Scotia, there do not appear to be any significant differences in the existing measures of health status. In order to achieve lower ALOS, more appropriate use would have to be made of hospitals. This implies various efficiency-enhancing mechanisms such as more extensive use of alternatives already in existence and for developing viable alternatives and shifting the funding into those areas. It also means that more comprehensive planning and evaluation should be done, a point which relates very clearly to the above-noted recommendation regarding goals, objectives and strategies.

It is recommended, therefore, that Nova Scotia reduce the average length of stay in hospitals by one day (on average) from the current level. This is a short-run activity which implies making greater use of alternatives. In the longer-run, it is further recommended, that Nova Scotia evaluate alternatives such as home care, community-based options, house calls, hospital-in-the-home, etc., and shift resources into the viable areas.

A third specific implication of the research is the need for Nova Scotia to consider the development and implementation of extensive health promotion/prevention programs. In view of the types of health problems confronting Nova Scotians and the negligible impact of current health expenditures on these problems, it is conceivable that more cost-effective results could be achieved by concentrating on policies whose objectives relate to decreasing (harmful) cholesterol levels, smoking rates, and hypertension levels. Success in these areas would not add significantly to general life expectancy; but, then, neither do existing health care delivery programs. Very likely, however, positive results here would reduce the amount of premature death due to such causes as heart disease and cancer and, possibly, contribute to increased overall productivity from the perspective of the economy. Furthermore, there likely would also be fewer and shorter periods of activity limitation and disability over the longer term.

At the very minimum, prior to deciding on any alternative (or set of alternatives), a wider range of curative and preventive options should be evaluated for the cost-effectiveness. At the present time, little evaluation of any option is undertaken prior to its implementation. It should be recalled that the existing hospital and medical services system was established a few decades ago to address short-term, acute medical illness and injuries. Compared to the dramatic changes which have occurred in the nature of health problems, public expectations, and elsewhere in society, the present health care system has remained relatively static. This situation, itself, should provide sufficient incentive to consider major system changes which

would more effectively and efficiently deal with health problems of the 1990s and beyond.

It is recommended, therefore, that Nova Scotia undertake to develop longer-run system changes which would result in a set of alternatives which would effectively and efficiently address health problems in Nova Scotia now and for the foreseeable future. As was suggested with respect to goals, objectives and activities, this could be regarded as a medium-term activity. The connection to the first recommendation is inescapable.

The fourth specific implication of this study is the necessity to develop consistent standards in the existing health care system in Nova Scotia (and, for that matter, elsewhere too!). In view of the evidence that the rates of medical and surgical procedures and average lengths of stay vary considerably from one province to the next (and, based on research by Eugene Vayda and his colleagues (1985), likely from one country to the next within a province), there is a need to create acceptable standards for length of stay in hospital, appropriate medical and surgical procedures, and for outcomes. This implies that quality assurance programs be beefed up and that utilization reviews deal with outcomes as well as processes. Since most hospital executives lack the expertise (and quite likely, the mandate), administrators would be unable to develop these standards in isolation. However, government could show leadership in this regard and could attempt to get hospitals (and their associations), organized medicine and the academic community to work together to establish these benchmarks.

It has to be emphasized that, since the medical staff has the expertise and the commitment to quality, it is imperative they become involved. It is equally important that consensus on a number of these areas such as lengths of stay, surgical procedures, etc., is based on the best evidence available, and not solely on current individual practice styles.

It is recommended, therefore that the Nova Scotia government establish multidisciplinary committees to develop standards in important areas such as outcomes, appropriate medical and surgical procedures, and lengths of stay in hospitals. Since results of these committees could realize some economic efficiencies in the short-run, these groups should be organized in the very near future to deal with the issues and earlier recommendations regarding average length of stay in hospitals. Over the medium-term the other could be addressed.

This leads to the fifth major specific implication of this research, namely the need for more complete and better data. It is certain that the process of establishing goals, objectives and strategies will lead to a better understanding and delineation of which data are required and how to best go about collecting them. Yet, the current paucity and state of existing data makes it essential that

Nova Scotia initiate steps soon to improve the situation. In order to better identify health problems, determine needs, design alternative courses of action and assess their consequences, monitor programs already underway, and evaluate the outcomes and processes, a wide range of statistics are required as soon as possible.

Given the significant proportion of resources being consumed by the health care system for insured hospital and medical services, the cost of producing information and analysis which would enhance (considerably) the decision-making process is minimal. The cost of not doing so, is high. A conservative estimate of the cost of collecting, analyzing and disseminating administrative and survey data for decision-making and planning in Nova Scotia would be about one-half of one percent of total health expenditures for the province. As was suggested by Spasoff and his colleagues (1987: 105) for Ontario,"routinely collected data bases should be redesigned to render them useful for planning and evaluation, and an adequate Ontario Health Survey should be conducted at regular intervals, at least every three years. Once the initial development work has been done, the cost of each survey would be less than $1 million, which is roughly equivalent to the operating costs of just one bed in a teaching hospital over the three-year period". The same could be said for Nova Scotia.

It is recommended, therefore, that Nova Scotia immediately undertake to improve data in the following areas:

(i) create constant dollar series for provincial estimates of health expenditures;

(ii) develop cost estimates for specific health problems, by socio-demographic characteristics of the population, by geographical distribution, by hospital, medical and other services consumed treating these problems. A major improvement for hospital expenditures would be to develop them on a case-mix basis;

(iii) create cost estimates which reveal the direct implications of physicians' clinical decisions on the consumption of health care resources throughout the whole system;

(iv) develop cost and utilization data which relate to individual patients as opposed to cases, the result being information related to the socio-demographic and health status profiles of the population who are the high users of hospital and medical services. This would be extremely useful for targeting necessary services;

(v) in order to obtain a better understanding of the providers' role in treating health care problems, information on the intensity of services

supplied to patients or consumers should be related to the socio-demographic profile of providers making such services available. Since intensity of service and utilization are such important factors related to expenditure patterns, better data are needed. Physician/population ratios, etc., do not account for intensity of service ... they are even inadequate as measures of input. Statistics on what providers actually do, as well as what they are trained to do, should be readily available by province;

(vi) begin to develop more relevant health status indicators, which make use of existing administrative data and population-based health status information. Examples of such applications are Wilkins and Adams (1983) and Dillard (1982);

(vii) with Statistics Canada, work on enhancing the timeliness of existing data. It is difficult having to accept provincial life expectancy estimates which are no more current than 1982;

(viii) undertake to establish data which will inform policy makers of the implications and effects of technology on health status and on the health care delivery system. At the present time, virtually nothing exists;

(ix) on a related topic, especially in view of the development in the area of genetics, begin to pull together data on genetic disorders, related costs, and disability;

(x) finally, attempts should be undertaken to develop outcome measures, and to derive more appropriate measures of productivity, i.e., mixes of capital and labour to produce services in a cost-effective manner.

Recommendations (i), (ii) and (iii) could be actioned in the short-term, items (iv), (v), (vi) and (vii) could be undertaken in the medium-term future, and while the last three recommendations could be achieved over the longer-run, work should be initiated during the near future. Whether or not goals, objectives and strategies are developed by Nova Scotia, these data/information recommendations still would be necessary.

APPENDIX A

SUPPORTING TABLES

Table 1
Total Health Expenditures
As Dollars, Percent GDP, Per Capita Expenditures, Per Capita GDP and Annual Average Weekly Earnings
Canada, Atlantic Provinces, Saskatchewan and Manitoba, 1970-1987

(Millions $)

A.	1970	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984*	1985*	1986*	1987*
CANADA	6,255.9	12,239.3	14,088.4	15,494.2	17,251.7	19,430.4	22,719.4	26,642.5	31,172.7	34,697.0	37,420.2	39,793.3	43,900.0	46,700.0
NFLD	96.5	239.1	277.3	302.6	344.6	400.2	451.3	527.4	602.5	683.8	713.9	744.9	---	---
PEI	25.9	55.2	60.2	65.6	76.4	91.4	115.5	125.2	137.8	144.5	151.9	163.1	---	---
NS	195.1	393.4	452.4	481.8	529.0	586.4	669.9	815.3	952.6	1,051.3	1,168.3	1,259.1	---	---
NB	143.8	274.6	318.1	353.6	398.1	461.3	552.3	666.7	802.1	874.5	935.7	975.0	---	---
SASK	238.4	459.4	539.8	603.8	644.9	732.5	852.8	988.6	1,173.7	1,358.7	1,471.4	1,550.7	---	---
MAN	295.1	545.2	631.1	709.0	752.9	837.6	990.2	1,173.7	1,336.0	1,476.7	1,611.8	1,730.4	---	---

(% GDP)

B.	1970	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984*	1985*	1986*	1987*
CANADA	7.3	7.3	7.2	7.2	7.2	7.1	7.4	7.6	8.4	8.6	8.5	8.6	8.9	8.8
NFLD	8.1	11.1	10.6	10.3	11.0	10.6	11.4	11.5	12.2	12.6	11.9	11.7	---	---
PEI	10.8	11.4	11.2	11.4	11.5	12.0	13.4	13.0	13.3	12.1	12.4	12.4	---	---
NS	8.8	10.1	10.0	9.8	9.5	9.6	10.5	11.1	11.4	11.2	11.2	10.8	---	---
NB	8.8	8.7	8.8	8.9	8.8	8.4	11.0	11.4	12.6	11.9	11.6	11.0	---	---
SASK	7.9	6.5	6.8	7.2	6.7	6.7	6.4	6.5	7.6	8.4	8.4	8.9	---	---
MAN	8.1	7.8	7.9	8.4	8.1	8.1	8.8	8.9	9.6	9.8	9.7	9.6	---	---

($ Per Capita)

C.	1970	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984*	1985*	1986*	1987*
CANADA	293	539	612	663	733	817	944	1093	1264	1398	1488	1568	---	---
NFLD	186	435	497	540	613	710	797	928	1057	1187	1231	1282	---	---
PEI	236	470	509	548	631	748	940	1020	1121	1160	1206	1279	---	---
NS	249	480	546	578	631	700	793	963	1117	1218	1340	1431	---	---
NB	229	412	469	516	579	667	794	957	1146	1233	1309	1354	---	---
SASK	254	505	585	645	683	769	888	1020	1198	1366	1460	1523	---	---
MAN	300	537	618	690	730	815	966	1143	1290	1408	1521	1616	---	---

(Per Capita GDP)

D.	1970	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
CANADA	---	---	---	9,313	10,283	11,634	12,878	14,624	15,230	16,299	17,796	18,993	---	---
NFLD	---	---	---	5,361	5,745	6,927	7,248	8,203	8,922	9,606	10,579	11,211	---	---
PEI	---	---	---	5,058	5,683	6,496	6,992	8,270	8,615	9,472	10,468	10,560	---	---
NS	---	---	---	5,981	6,750	7,350	7,553	8,807	10,074	11,368	12,536	13,601	---	---
NB	---	---	---	5,826	6,519	7,827	7,263	8,628	9,405	10,720	11,890	12,530	---	---
SASK	---	---	---	8,704	9,840	11,019	12,914	14,813	15,092	15,389	16,844	17,208	---	---
MAN	---	---	---	8,082	8,922	10,038	10,916	12,824	13,562	14,261	15,694	16,916	---	---

(Annual Average Weekly Earnings All Industries)**

E.	1970	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
CANADA	---	---	---	249.95	265.37	288.25	317.39	355.28	390.79	390.56	405.22	419.27	---	---
NFLD	---	---	---	242.43	248.36	271.64	288.90	328.08	361.82	370.82	389.14	396.73	---	---
PEI	---	---	---	187.73	196.72	209.77	230.33	250.13	278.53	314.92	324.41	338.97	---	---
NS	---	---	---	212.09	223.72	245.23	265.95	296.35	329.12	342.82	360.32	376.54	---	---
NB	---	---	---	223.34	232.89	256.49	284.36	313.37	342.14	353.40	374.20	384.95	---	---
SASK	---	---	---	235.56	250.44	275.79	303.71	336.76	373.80	374.05	387.75	394.24	---	---
MAN	---	---	---	226.29	239.71	259.00	283.20	314.42	346.49	361.05	378.84	387.94	---	---

Note: Provincial estimates are not yet available for 1986 and 1987.
* Provisional data.
** From 1983 onward the earnings data include estimates for public administration, education, health and welfare services; province data were not adusted by Statistics Canada to make the series comparable over the whole period 1977-1985. While this situation makes it impractical to compare individual series over time, comparisons between and among provinces can still be made.

Source: Statistics Canada (December 1988), Canadian Economic Observer, Catalogue 11-010, Ottawa: Supply and Services Canada.
Statistics Canada (various years), Employment, Earnings and Hours, Catalogue 72-002, Ottawa: Supply and Services Canada.
Health and Welfare Canada (1987), National Health Expenditures in Canada 1975-1985, Ottawa.
Health and Welfare Canada (1985), National Health Expenditures in Canada 1970-1982, Ottawa.

Table 2
Health Expenditures per Capita
Current and Constant Dollars
Selected Years, Canada

	Current Dollars		Constant Dollars	
	$	% Change	$	% Change
1975	539	---	889	---
1979	817	51.6	1002	12.7
1982	1,264	54.7	1161	15.9
*1985	1,568	24.1	1281	10.3
(1975-1985)	---	190.9	---	44.1

Note: * Provisional data.

Source: Health and Welfare Canada (1987), National Health Expenditures in Canada 1975-1985, Ottawa.

FISCAL YEAR	HOSPITAL SERVICES	MEDICAL SERVICES	HOSPITAL AND MEDICAL SERVICES	EXTENDED HEALTH SERVICES	HOSPITAL, MEDICAL, AND EXTENDED SERVICES	OTHER HEALTH SERVICES	TOTAL
Estimated Provincial Government Health Expenditures ($ thousands)							
1974-75	90,577	22,958	113,535	11,295	124,830	49,882	174,712
1975-76	117,970	26,994	144,964	15,219	160,183	47,309	207,492
1976-77	125,124	30,899	156,023	23,296	179,319	43,674	222,993
1977-78	141,053	32,030	173,083	28,456	201,539	35,619	237,158
1978-79	161,284	33,572	194,856	31,695	226,551	39,014	265,565
1979-80	187,784	37,956	225,740	39,146	264,886	43,201	308,087
1980-81	212,547	45,649	258,196	41,765	299,961	46,723	346,684
1981-82	251,542	51,612	303,154	47,202	350,356	58,917	409,273
1982-83	282,507	61,138	343,645	59,414	403,059	76,668	479,727
1983-84	310,412	67,406	377,818	65,193	443,011	85,970	528,981
1984-85	314,388	75,135	389,523	65,348	454,871	82,269	537,140
1985-86	326,712	79,460	406,172	70,805	476,977	93,690	570,667
1986-87	357,242	85,392	442,634	79,609	522,243	102,618	624,861
1987-88p	376,278	94,700	470,978	85,060	556,038	113,926	669,964
1988-89p	399,394	100,198	499,592	89,831	589,423	111,888	701,311
Federal Contributions as a Percentage of Provincial Expenditures (%)							
1974-75	49.6	76.8	55.1	30.5	52.9	4.5	39.1
1975-76	47.7	75.0	52.7	33.9	50.9	4.3	40.3
1976-77	53.7	74.8	57.9	27.0	53.9	5.1	44.3
1977-78	50.4	76.3	55.2	57.3	55.5	5.1	47.9
1978-79	52.1	86.2	58.0	44.7	56.2	6.1	48.8
1979-80	51.5	87.7	57.6	40.2	55.0	7.0	48.3
1980-81	50.6	81.1	56.0	44.1	54.4	7.7	48.1
1981-82	47.7	80.0	53.2	42.3	51.7	6.6	45.2
1982-83	47.7	75.9	52.7	38.1	50.6	5.3	43.3
1983-84	48.1	76.3	53.1	39.3	51.1	6.4	43.8
1984-85	51.4	74.1	55.8	41.5	53.7	6.8	46.5
1985-86	52.2	73.9	56.5	40.9	54.2	6.7	46.4
1986-87	50.3	72.5	54.6	38.4	52.1	7.1	44.7
1987-88p	50.1	68.6	53.8	37.7	51.4	7.0	43.8
1988-89p	49.1	67.4	52.8	37.1	50.4	7.0	43.5

p - Preliminary

Source: Health and Welfare Canada, Unpublished tables from Policy, Communications and Information Branch.

TABLE 3b

16-Dec-88

PRINCE EDWARD ISLAND

FISCAL YEAR	HOSPITAL SERVICES	MEDICAL SERVICES	HOSPITAL AND MEDICAL SERVICES	EXTENDED HEALTH SERVICES	HOSPITAL, MEDICAL, AND EXTENDED SERVICES	OTHER HEALTH SERVICES	TOTAL
	Estimated Provincial Government Health Expenditures ($ thousands)						
1974-75	20,058	5,910	25,968	4,575	30,543	5,130	35,673
1975-76	24,281	6,472	30,753	6,005	36,758	6,790	43,548
1976-77	25,359	7,209	32,568	6,844	39,412	6,721	46,133
1977-78	27,265	7,990	35,255	7,622	42,877	8,934	51,811
1978-79	31,319	8,946	40,265	8,205	48,470	9,553	58,023
1979-80	34,635	9,440	44,075	9,531	53,606	10,555	64,161
1980-81	39,638	10,961	50,599	10,563	61,162	14,431	75,593
1981-82	45,605	12,881	58,486	12,127	70,613	16,471	87,084
1982-83	56,193	15,295	71,488	13,762	85,250	17,222	102,472
1983-84	59,732	16,780	76,512	14,652	91,164	20,958	112,122
1984-85	61,822	17,690	79,512	15,964	95,476	22,792	118,268
1985-86	64,727	19,631	84,358	18,776	103,134	21,601	124,735
1986-87	69,291	21,808	91,099	22,661	113,760	21,348	135,108
1987-88p	73,037	22,912	95,949	24,486	120,435	22,501	142,936
1988-89p	77,040	24,590	101,630	25,172	126,802	26,286	153,088
	Federal Contributions as a Percentage of Provincial Expenditures (%)						
1974-75	43.0	63.7	47.7	69.4	50.9	1.3	43.8
1975-76	43.2	66.8	48.2	58.3	49.8	1.2	42.2
1976-77	46.1	67.8	50.9	73.1	54.7	1.2	46.9
1977-78	53.3	62.6	55.4	39.1	52.5	1.6	43.7
1978-79	56.5	68.2	59.1	48.4	57.3	5.9	48.8
1979-80	60.4	76.3	63.8	42.5	60.0	2.4	50.6
1980-81	58.9	73.4	62.1	45.9	59.3	2.1	48.4
1981-82	56.8	69.2	59.5	44.7	56.9	1.9	46.5
1982-83	51.8	65.5	54.7	42.5	52.7	2.7	44.3
1983-84	54.0	66.1	56.6	45.7	54.9	1.6	44.9
1984-85	56.8	68.4	59.4	40.8	56.3	2.9	46.0
1985-86	58.1	66.0	60.0	38.9	56.1	2.2	46.8
1986-87	57.8	63.3	59.1	34.7	54.3	3.0	46.2
1987-88p	57.9	63.5	59.2	33.8	54.0	4.1	46.2
1988-89p	57.7	62.3	58.8	34.3	54.0	3.1	45.2

p - Preliminary

Source: Health and Welfare Canada, Unpublished tables from Policy, Communications and Information Branch.

16-Dec-88 NOVA SCOTIA

FISCAL YEAR	HOSPITAL SERVICES	MEDICAL SERVICES	HOSPITAL AND MEDICAL SERVICES	EXTENDED HEALTH SERVICES	HOSPITAL, MEDICAL, AND EXTENDED SERVICES	OTHER HEALTH SERVICES	TOTAL
Estimated Provincial Government Health Expenditures ($ thousands)							
1974-75	139,842	45,856	185,698	7,509	193,207	36,503	229,710
1975-76	172,054	55,630	227,684	10,606	238,290	43,204	281,494
1976-77	196,599	60,701	257,300	14,392	271,692	40,381	312,073
1977-78	207,804	66,058	273,862	23,350	297,212	47,477	344,689
1978-79	227,714	72,021	299,735	27,341	327,076	54,106	381,182
1979-80	256,620	78,914	335,534	31,038	366,572	60,113	426,685
1980-81	288,156	90,061	378,217	35,408	413,625	79,830	493,455
1981-82	370,971	102,920	473,891	41,944	515,835	94,962	610,797
1982-83	416,371	123,499	539,870	47,429	587,299	114,240	701,539
1983-84	461,574	136,470	598,044	50,673	648,717	115,209	763,926
1984-85	502,928	152,320	655,248	54,988	710,236	129,692	839,928
1985-86	538,113	168,489	706,602	56,645	763,247	145,079	908,326
1986-87	568,687	176,856	745,543	57,745	803,288	148,912	952,200
1987-88p	605,945	191,299	797,244	60,391	857,635	172,429	1,030,064
1988-89p	640,743	202,042	842,785	76,336	919,121	194,985	1,114,106
Federal Contributions as a Percentage of Provincial Expenditures (%)							
1974-75	47.5	56.8	49.8	50.2	49.8	2.8	42.4
1975-76	47.5	53.6	49.0	55.6	49.3	2.9	42.2
1976-77	49.1	56.0	50.7	55.8	51.0	3.5	44.9
1977-78	52.7	57.1	53.8	85.8	56.3	3.4	49.0
1978-79	55.7	60.6	56.9	72.5	58.2	3.1	50.4
1979-80	56.3	63.1	57.9	72.1	59.1	3.1	51.2
1980-81	55.8	61.5	57.1	72.2	58.4	2.6	49.4
1981-82	48.3	59.9	50.8	66.8	52.1	2.6	44.4
1982-83	48.5	56.3	50.3	67.6	51.7	2.5	43.7
1983-84	48.4	56.4	50.2	71.0	51.8	3.0	44.5
1984-85	48.3	54.9	49.9	72.4	51.6	2.7	44.1
1985-86	48.3	53.2	49.5	77.3	51.5	2.5	43.7
1986-87	48.6	53.8	49.8	83.0	52.2	3.2	44.5
1987-88p	48.2	52.5	49.2	80.0	51.4	3.0	43.3
1988-89p	47.6	52.0	48.7	66.0	50.1	2.7	41.8

p - Preliminary

Source: Health and Welfare Canada, Unpublished tables from Policy, Communications and Information Branch.

16-Dec-88 NEW BRUNSWICK

FISCAL YEAR	HOSPITAL SERVICES	MEDICAL SERVICES	HOSPITAL AND MEDICAL SERVICES	EXTENDED HEALTH SERVICES	HOSPITAL, MEDICAL, AND EXTENDED SERVICES	OTHER HEALTH SERVICES	TOTAL
Estimated Provincial Government Health Expenditures ($ thousands)							
1974-75	107,433	26,277	133,710	3,932	137,642	32,415	170,057
1975-76	132,096	32,189	164,285	14,658	178,943	36,195	215,138
1976-77	156,785	33,867	190,652	22,856	213,508	38,301	251,809
1977-78	170,029	37,744	207,773	27,476	235,249	43,423	278,672
1978-79	184,471	41,456	225,927	31,243	257,170	49,062	306,232
1979-80	196,348	47,470	243,818	41,405	285,223	61,988	347,211
1980-81	229,285	58,531	287,816	51,848	339,664	71,801	411,465
1981-82	277,485	73,982	351,467	64,328	415,795	85,193	500,988
1982-83	327,586	94,138	421,724	80,467	502,191	104,339	606,530
1983-84	341,295	106,187	447,482	84,942	532,424	102,451	634,875
1984-85	369,157	110,585	479,742	88,963	568,705	115,755	684,460
1985-86	386,427	121,072	507,499	93,051	600,550	119,517	720,067
1986-87	403,656	129,942	533,598	87,585	621,183	151,697	772,880
1987-88p	427,622	136,159	563,781	90,305	654,086	178,344	832,430
1988-89p	464,397	153,588	617,985	99,749	717,734	178,672	896,406
Federal Contributions as a Percentage of Provincial Expenditures (%)							
1974-75	51.1	81.8	57.2	21.1	56.1	3.5	46.1
1975-76	51.4	77.0	56.4	15.0	53.1	3.9	44.8
1976-77	50.1	82.7	55.9	26.5	52.8	3.3	45.3
1977-78	51.1	79.3	56.2	61.5	56.9	3.0	48.5
1978-79	55.8	85.5	61.3	58.8	61.0	3.1	51.7
1979-80	60.6	86.3	65.6	47.8	63.0	3.0	52.3
1980-81	57.7	77.8	61.8	43.5	59.0	3.1	49.2
1981-82	53.0	68.5	56.3	38.7	53.6	3.4	45.0
1982-83	50.6	60.6	52.8	35.2	50.0	3.0	41.9
1983-84	53.8	59.5	55.1	36.8	52.2	3.1	44.3
1984-85	53.2	62.0	55.2	38.3	52.6	2.8	44.2
1985-86	54.0	60.2	55.5	39.9	53.1	3.3	44.8
1986-87	57.1	59.4	57.7	40.2	55.2	3.8	45.1
1987-88p	55.3	60.1	56.5	41.0	54.3	3.3	43.4
1988-89p	53.1	55.3	53.7	39.6	51.7	3.3	42.1

p - Preliminary

Source: Health and Welfare Canada, Unpublished tables from Policy, Communications and Information Branch.

16-Dec-88 SASKATCHEWAN

FISCAL YEAR	HOSPITAL SERVICES	MEDICAL SERVICES	HOSPITAL AND MEDICAL SERVICES	EXTENDED HEALTH SERVICES	HOSPITAL, MEDICAL, AND EXTENDED SERVICES	OTHER HEALTH SERVICES	TOTAL
Estimated Provincial Government Health Expenditures ($ thousands)							
1974-75	151,863	47,143	199,006	19,566	218,572	41,509	260,081
1975-76	185,386	54,179	239,565	21,776	261,341	55,248	316,589
1976-77	229,710	62,469	292,179	24,390	316,569	63,996	380,565
1977-78	252,069	68,823	320,892	26,340	347,232	74,507	421,739
1978-79	261,479	74,872	336,351	31,447	367,798	87,046	454,844
1979-80	287,381	82,667	370,048	53,178	423,226	104,374	527,600
1980-81	345,111	97,876	442,987	62,931	505,918	125,297	631,215
1981-82	370,917	116,061	486,978	110,009	596,987	139,975	736,962
1982-83	438,146	141,321	579,467	156,473	735,940	164,930	900,870
1983-84	473,470	153,437	626,907	183,053	809,960	178,356	988,316
1984-85	497,665	166,223	663,888	183,377	847,265	188,266	1,035,531
1985-86	519,464	178,353	697,817	197,513	895,330	228,604	1,123,934
1986-87	557,732	196,527	754,259	221,841	976,100	286,179	1,262,279
1987-88p	570,329	202,400	772,729	242,991	1,015,720	248,885	1,264,605
1988-89p	603,323	205,505	808,828	246,035	1,054,863	248,899	1,303,762
Federal Contributions as a Percentage of Provincial Expenditures (%)							
1974-75	50.6	63.4	53.7	31.2	51.6	4.0	44.0
1975-76	50.3	63.4	53.3	52.3	53.2	2.6	44.4
1976-77	47.8	62.3	50.9	65.3	52.0	2.0	43.6
1977-78	48.2	60.8	50.9	98.2	54.5	1.6	45.1
1978-79	54.4	65.4	56.8	71.5	58.1	1.3	47.2
1979-80	56.9	68.1	59.4	47.1	57.9	1.0	46.6
1980-81	52.9	64.2	55.4	49.4	54.6	0.6	43.9
1981-82	55.2	60.7	56.5	40.3	53.5	0.6	43.4
1982-83	53.0	56.6	53.9	33.4	49.5	0.8	40.6
1983-84	54.4	57.8	55.2	28.9	49.3	0.8	40.5
1984-85	56.4	57.3	56.7	32.7	51.5	1.1	42.3
1985-86	58.0	58.9	58.2	26.8	51.3	1.1	41.1
1986-87	57.3	56.0	57.0	24.7	49.6	0.9	38.6
1987-88p	59.0	57.3	58.6	23.7	50.2	0.9	40.5
1988-89p	57.9	58.5	58.1	24.8	50.3	1.0	40.9

p - Preliminary

Source: Health and Welfare Canada, Unpublished tables from Policy, Communications and Information Branch.

16-Dec-88 MANITOBA

FISCAL YEAR	HOSPITAL SERVICES	MEDICAL SERVICES	HOSPITAL AND MEDICAL SERVICES	EXTENDED HEALTH SERVICES	HOSPITAL, MEDICAL, AND EXTENDED SERVICES	OTHER HEALTH SERVICES	TOTAL
Estimated Provincial Government Health Expenditures ($ thousands)							
1974-75	186,988	59,854	246,842	44,625	291,467	24,155	315,622
1975-76	233,306	65,980	299,286	59,933	359,219	38,313	397,532
1976-77	264,000	74,940	338,940	76,973	415,913	51,248	467,161
1977-78	285,474	79,972	365,446	84,593	450,039	57,925	507,964
1978-79	284,732	94,107	378,839	89,844	468,683	62,690	531,373
1979-80	312,062	106,241	418,303	99,446	517,749	65,728	583,477
1980-81	367,013	116,982	483,995	115,814	599,809	77,038	676,847
1981-82	446,858	144,131	590,989	139,482	730,471	88,787	819,258
1982-83	508,479	159,637	668,116	166,229	834,345	113,694	948,039
1983-84	558,925	170,888	729,813	187,813	917,626	129,134	1,046,760
1984-85	604,668	179,422	784,090	199,180	983,270	138,455	1,121,725
1985-86	643,333	191,398	834,731	215,348	1,050,079	153,956	1,204,035
1986-87	694,333	211,020	905,353	222,856	1,128,209	164,408	1,292,617
1987-88p	743,312	224,900	968,212	240,902	1,209,114	186,244	1,395,358
1988-89p	796,538	242,364	1,038,902	269,702	1,308,604	213,126	1,521,730
Federal Contributions as a Percentage of Provincial Expenditures (%)							
1974-75	47.8	55.6	49.7	0.2	42.1	6.4	39.4
1975-76	47.5	57.4	49.7	3.2	41.9	4.1	38.3
1976-77	48.5	57.3	50.5	5.9	42.2	3.7	38.0
1977-78	48.6	59.7	51.0	26.8	46.4	3.5	41.6
1978-79	55.4	57.7	56.0	27.7	50.6	3.3	45.0
1979-80	56.6	57.3	56.8	27.8	51.2	3.3	45.8
1980-81	53.1	57.4	54.1	26.7	48.8	2.8	43.6
1981-82	48.5	51.8	49.3	24.2	44.5	2.6	40.0
1982-83	48.2	52.9	49.4	23.2	44.1	2.4	39.1
1983-84	48.6	54.7	50.1	22.8	44.5	2.6	39.3
1984-85	48.9	56.2	50.5	23.4	45.0	2.9	39.8
1985-86	49.4	57.6	51.3	23.1	45.5	2.8	40.0
1986-87	48.8	55.3	50.3	24.0	45.1	2.8	39.7
1987-88p	48.2	54.8	49.7	23.2	44.4	2.9	38.9
1988-89p	47.1	53.3	48.5	21.6	43.0	2.2	37.3

p - Preliminary

TABLE 3 A-F
NOTES

Common Features:

Data are for fiscal years ending in March. Dollar figures are rounded independently to the nearest thousand for each province. Percentage figures are shown to the nearest tenth of a per cent.

Provincial Expenditures:

These figures represent the entire expenditure for health purposes made by provincial governments, thereby including the re-spending of federal contributions. All forms of health care are included. The column headed "extended health services" represents, in the cost of provincial expenditures, amounts spent for home care and for homes for special care. The figures are mainly derived from the public accounts of the province or territory concerned. The figures marked "p" (preliminary) come principally from the published estimates of the province. In some cases, however, these figures have been adjusted in the light of later, more-nearly-final, data from other official provincial sources. The figures correspond, apart from revisions made form time to time, with those published for the provincial sector in the Departmental publication "National Health Expenditures in Canada."

Federal Contributions as a Percentage of Provincial Expenditures:

The total of the figures given for the E.P.F. and the C.A.P., calculated as percentages of provincial expenditures. The amount of the federal contribution under E.P.F. is in no way conditioned by the amount of provincial expenditure; the two are independent of one another. Accordingly, variation in the percentage relationship can and does occur over time.

Table 4
Percentage Distribution of Total Health Expenditures
By Major Category and Sector
Canada, Atlantic Provinces, Saskatchewan and Manitoba
1975 and 1985

	Canada		Newfoundland		PEI		Nova Scotia		New Brunswick		Saskatchewan		Manitoba	
	1975	1985*	1975	1985*	1975	1985*	1975	1985*	1975	1985*	1975	1985*	1975	1985*
Category						Percent								
Hospitals	44.5	40.4	48.5	47.0	44.3	40.7	48.2	46.4	50.0	44.5	41.1	34.7	44.9	39.2
Other Institutions	9.8	11.3	7.3	11.6	14.4	12.9	5.6	7.6	7.0	13.1	12.9	19.4	13.3	13.2
Physicians	15.7	15.7	11.3	11.0	12.0	12.0	15.0	14.2	12.5	12.6	12.5	11.9	13.0	12.0
Dentists	4.9	5.5	2.1	2.4	4.8	4.5	3.7	5.0	3.1	3.3	4.1	5.0	4.5	5.2
Drugs	8.9	10.2	9.2	12.2	9.8	14.7	9.8	14.4	8.6	11.8	11.4	10.3	8.8	9.7
Capital	5.0	4.4	12.0	4.9	3.3	1.1	7.8	3.5	10.6	5.7	5.7	5.3	3.4	5.7
Other	11.2	12.5	9.6	10.9	11.4	14.1	9.9	8.9	8.2	9.0	12.3	13.4	12.1	15.0

	Canada		Newfoundland		PEI		Nova Scotia		New Brunswick		Saskatchewan		Manitoba	
	1975	1985*	1975	1985*	1975	1985*	1975	1985*	1975	1985*	1975	1985*	1975	1985*
Sector						Percent								
Fed. Govt. Direct Exp.	3.2	3.1	2.0	2.8	2.7	3.0	6.1	4.9	3.0	3.0	4.0	5.1	7.2	8.0
Fed. Cont. to Prov.	27.7	28.4	34.7	35.6	32.1	35.3	28.9	31.3	33.6	32.8	29.2	30.1	26.7	27.5
Prov. Gov't. Exp.	42.9	41.1	48.7	40.1	43.3	38.2	38.2	37.3	40.6	38.4	35.1	40.0	42.2	40.0
Prov. Tr. to Local Gov't.	0.6	0.6	---	---	---	---	1.0	---	---	---	1.5	0.1	0.3	0.1
Workers' Comp Exp.	1.0	0.9	0.6	1.1	0.5	0.6	0.6	0.7	1.1	1.3	0.7	0.4	0.5	0.8
Local Gov't. Exp.	1.1	1.8	---	---	---	---	2.3	1.0	---	0.2	2.7	5.1	2.1	1.6
Private Expenditures	23.5	24.1	14.0	20.4	21.5	22.9	22.9	24.8	21.7	24.2	26.8	19.2	22.1	22.0

Note: * Provisional data.
Total amounts expended in each province would include "Federal Contributions to Provinces, "Provincial Government Expenditures" and "Provincial Transfers to Local Government."

Source: Health and Welfare Canada (1987), National Health Expenditures in Canada 1975-1985, Ottawa.

Table 5
Regular Tobacco Smokers, Population Aged 15+
Canada, Atlantic Provinces, Saskatchewan and Manitoba
1986

	%	
	Males	Females
CANADA	30.8	25.8
NFLD	35.3	26.9
PEI	31.1	19.8
NS	32.7	28.7
NB	33.6	27.8
SASK	29.2	25.5
MAN	29.9	25.5

Source: Health and Welfare Canada (1988), Smoking Behaviour of Canadians 1986, Ottawa.

Table 6
Number of Deaths and Rates per 1,000 Population
Canada, Atlantic Provinces, Saskatchewan and Manitoba
1976 and 1986

	1976		1986	
Number of Deaths	Males	Females	Males	Females
Canada	96,725	70,284	100,969	83,255
Newfoundland	1,952	1,371	1,998	1,542
PEI	634	461	629	492
Nova Scotia	3,992	2,963	4,020	3,235
New Brunswick	3,032	2,170	3,052	2,406
Saskatchewan	4,798	3,011	4,633	3,428
Manitoba	4,698	3,564	4,880	4,031

	1976		1986	
Death Rates*	Males	Females	Males	Females
Canada	8.1	4.8	6.8	4.1
Newfoundland	8.0	5.1	6.8	4.4
PEI	8.4	4.6	7.3	4.0
Nova Scotia	8.4	5.0	7.3	4.2
New Brunswick	8.3	4.8	7.1	4.1
Saskatchewan	7.5	4.3	6.4	3.8
Manitoba	7.5	4.7	6.7	4.1

Note: * Death rates are age standardized to 1956 census population.

Source: Statistics Canada (1986), Mortality Summary List of Causes, Vital Statistics Volume III, Catalogue 84-206, Ottawa: Supply and Services Canada. (numbers)

Statistics Canada (1986), Vital Statistics Volume I Births and Deaths, Catalogue 84-204, Ottawa: Supply and Services Canada. (rates)

Statistics Canada (1976), Vital Statistics Volume III Deaths, Catalogue 84-206, Ottawa: Supply and Services Canada. (rates)

Statistics Canada (1976), Causes of Death Provinces by Sex and Canada by Sex and Age, Catalogue 84-203, Ottawa: Industry, Trade and Commerce. (numbers)

Table 7
Potential Years of Life Lost (PYLL)
All Causes of Death and
Coronary Heart Disease, Lung Cancer, Breast Cancer
Males and Females
Canada, Atlantic Provinces, Saskatchewan and Manitoba, 1982-86

PYLL

	All Causes		Coronary Heart Disease		Lung Cancer		Breast Cancer
	Male	Female	Male	Female	Male	Female	Female
Canada	9,405	4,972	1,618	439	603	235	375
NFLD	9,577	5,032	1,794	629	641	150	326
PEI	9,907	4,702	1,990	401	686	217	385
NS	10,032	5,094	1,916	496	636	265	425
NB	10,172	4,953	1,775	482	664	211	364
SASK	9,923	5,231	1,385	324	460	213	321
MAN	9,641	5,297	1,589	431	547	223	378

Source: McCann, Catherine (1988), "Potential Years of Life Lost, Canada, 1982 to 1986," Chronic Diseases in Canada, Vol. 9, No. 6: 98-100.

Table 8
Population per Active Civilian Physician and Specialists Including Interns and Residents
Canada, Atlantic Provinces, Saskatchewan and Manitoba
1976-1986

Active Civilian Physicians	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
CANADA	577	566	560	554	547	538	521	510	503	487	479
NFLD	718	699	696	687	655	635	604	586	582	583	545
PEI	850	855	827	801	805	790	800	831	796	766	716
NS	593	565	546	537	533	531	522	499	505	483	479
NB	882	880	878	905	885	853	798	760	757	743	764
SASK	707	677	675	667	669	659	641	635	640	629	620
MAN	579	569	558	556	545	539	509	499	500	494	488
Specialists											
CANADA	1,385	1,361	1,350	1,330	1,314	1,283	1,252	1,227	1,206	1,179	1,156
NFLD	2,754	2,686	2,640	2,362	2,296	2,112	2,057	1,979	1,956	2,122	2,087
PEI	2,429	2,274	2,338	2,311	2,186	2,269	2,088	2,010	1,878	2,107	1,838
NS	1,629	1,577	1,514	1,528	1,481	1,434	1,354	1,298	1,311	1,330	1,288
NB	2,130	2,120	2,104	2,090	2,017	2,010	1,863	1,852	1,887	2,007	1,984
SASK	2,182	2,143	2,119	2,109	2,105	2,029	2,005	1,980	2,020	1,972	1,930
MAN	1,469	1,449	1,406	1,405	1,350	1,342	1,296	1,275	1,245	1,230	1,204

Source: Health and Welfare Canada (1988), Health Personnel in Canada, Ottawa.

Table 9
Seven Surgical Procedures
Rates per 100,00 Population
Canada, Atlantic Provinces, Saskatchewan and Manitoba
1984-85

	CANADA	NFLD	PEI	NS	NB	SASK	MAN
Cesarean Sections	514	608	258	497	535	556	459
Hysterectomies	378	505	279	342	374	299	341
Gall Bladders							
Males	131	80	77	137	133	120	140
Females	318	336	181	367	364	303	308
Appendectomies							
Males	137	167	161	138	148	154	150
Females	112	130	156	126	109	123	112
Hernia Repairs							
Males	376	239	332	337	375	352	362
Females	50	31	41	40	59	48	50
Prostatectomies	254	114	73	219	287	307	232
Tonsillectomies							
Males	55	94	70	71	82	92	74
Females	101	176	112	122	144	144	121

Source: Statistics Canada (various years), Surgical Procedures and Treatments, Ottawa: Supply and Services Canada.

Table 10
Office Visits to Physicians and Rate per 1,000 Population
Canada, Eastern and Western Regions
1980/81 - 1985/86

	1980/81	1981/82	1982/83	1983/84	1984/85	1985/86
Canada						
Number	95,431,408	97,134,341	102,355,727	105,438,817	108,193,781	111,215,273
(Per 1,000)	3,969	3,990	4,164	4,254	4,332	4,419
Eastern Region						
Number	7,145,852	7,230,782	7,445,093	7,664,823	8,013,372	8,297,056
(Per 1,000)	3,206	3,237	3,332	3,399	3,530	3,642
Western Region						
Number	25,564,572	26,592,969	28,601,058	29,675,736	30,435,977	31,744,412
(Per 1,000)	3,765	3,812	4,021	4,129	4,203	4,354

Note: "Office Visits" include initial and other office visits, and covers partial/minor/subsequent examiniations, psychotherapy, special eye examinations, well baby care, and other examinations.

"Eastern Region" includes Newfoundland, Prince Edward Island, Nova Scotia and New Brunswick.

"Western Region" includes Manitoba, Saskatchewan, Alberta and British Columbia.

Source: Health and Welfare Canada (1987), Utilization of Physician Services, Canada by Region, 1980-81 to 1984-85, Ottawa.

Health and Welfare Canada (1988), National Grouping System: Interim Report 1985-86, Ottawa.

Table 11
Medical Care Plans
Average Annual Benefit Rate Indices
Atlantic Provinces, Saskatchewan and Manitoba
By Fiscal Year 1971/72 - 1987/88*

Fiscal Yr.	NFLD	PEI	NS	NB	SASK	MAN
1971/72	100.0	100.0	100.0	100.0	100.0	100.0
1972/73	101.5	103.5	108.6	100.0	104.9	100.0
1973/74	110.0	103.5	115.2	100.0	107.4	101.5
1974/75	110.7	112.0	125.2	104.7	113.7	107.3
1975/76	124.0	118.0	143.6	112.9	127.4	113.8
1976/77	133.3	127.7	155.3	118.8	138.8	123.6
1977/78	135.3	135.9	161.6	126.8	146.8	130.0
1978/79	141.4	144.6	171.7	134.5	157.0	139.1
1979/80	152.7	157.4	184.6	152.2	170.3	150.4
1980/81	175.6	178.7	204.5	164.4	193.9	168.9
1981/82	197.2	195.7	229.0	192.8	225.2	195.1
1982/83	221.6	220.9	260.0	225.6	262.1	215.6
1983/84	231.8	230.5	279.2	237.6	276.9	223.0
1984/85	238.2	237.4	300.9	237.6	288.7	227.5
1985/86	239.2	245.9	316.5	249.4	293.6	232.1
1986/87	246.5	259.9	322.8	256.9	311.6	245.0
1987/88	262.4	271.6	332.5	262.1	319.3	253.6

Note: * 1971/72 base year = 100.0

Indices for 1987/88 are subject to revsion when the Saskatchewan January 1, 1987 settlement is finalized.

Source: Health and Welfare Canada (1988), Payment Schedule Increases 1971-1987, Canada by Province and Territory, Policy, Communications and Information Branch, Ottawa.

Table 12
Ratio of Hospital Expenditures
Per Capita, Bed, Patient-Day and Separation
Canada, Atlantic Provinces, Saskatchewan and Manitoba
1984/85

	Hosptial Expenditures ($ Miilions)	Ratio per			
		Capita ($)	Bed ($)	Patient-Day ($)	Separation ($)
Canada	16,086.8	633.84	95,414	387.24	4,418.84
Newfoundland	350.3	602.88	99,659	439.80	3,905.24
PEI	66.4	520.54	89,247	337.40	2,624.51
Nova Scotia	583.6	663.17	101,531	418.89	3,943.24
New Brunswick	433.8	602.51	84,528	338.30	3,605.99
Saskatchewan	538.3	528.78	74,105	328.87	2,653.03
Manitoba	677.9	644.39	103,829	390.63	4,139.87

Note: As a result of the source of the numerator, costs ratios may be higher than traditionally published ratios from Statistics Canada; the trends are the same, however.

Sources: For total hospital expenditures: Health and Welfare Canada (1987), National Health Expenditures in Canada 1975-1985, Ottawa.

For denominators in ratios: Statistics Canada, Preliminary Annual Report of Hospitals 1985-86; Hospital Morbidity 1984-85, and Postcensal Annual Estimates of Population 1987, Volume 5 Fifth Issue.

Table 13
Major Indicators of Hospital Utilization
Canada, Atlantic Provinces, Saskatchewan and Manitoba
1979/80, 1980/81 and 1984/85

	1979/80	1980/81	1984/85
A. Separations per 1,000 Population			
Canada	149.2	148.1	145.2
Newfoundland	162.8	162.9	156.1
PEI	212.6	208.6	204.0
Nova Scotia	170.4	170.7	172.4
New Brunswick	166.7	166.2	169.8
Saskatchewan	209.5	207.0	202.8
Manitoba	155.6	154.2	154.3
B. Average Length of Stay (ALOS)			
Canada	11.5	12.0	11.4
Newfoundland	8.7	8.7	8.9
PEI	7.1	7.2	7.8
Nova Scotia	9.7	9.7	9.4
New Brunswick	10.9	10.8	10.7
Saskatchewan	9.7	10.1	8.1
Manitoba	10.9	11.8	10.6
C. Inpatient Days per Capita			
Canada	1.71	1.77	1.66
Newfoundland	1.41	1.41	1.39
PEI	1.52	1.51	1.57
Nova Scotia	1.65	1.66	1.61
New Brunswick	1.82	1.79	1.81
Saskatchewan	2.03	2.09	1.64
Manitoba	1.69	1.81	1.64

Note: Rates are for adults and children; they do not include newborns.

Source: Statistics Canada (various years), Hospital Statistics Preliminary Annual Report, Catalogue 83-217, Ottawa: Supply and Services Canada.

Statistics Canada (various years), Hospital Morbidity, Catalogue 82-206, Ottawa: Supply and Services Canada.

Table 14
Percent Occupancy in Public Hospitals
Canada, Atlantic Provinces, Saskatchewan and Manitoba
Selected Years, 1975-1986/87

	% Occupancy				
	1975	1980/81	1983/84	1985/86	1986/87
Canada	77	82	83	84	84
Newfoundland	74	68	71	73	74
PEI	72	74	79	81	81
Nova Scotia	74	73	73	76	75
New Brunswick	75	80	81	82	81
Saskatchewan	75	76	74	76	76
Manitoba	75	73	75	76	76

Source: Statistics Canada (various years), Hospital Statistics Preliminary Annual Report, Catalogue 83-217, Ottawa: Supply and Services Canada.

Table 15
Comparison of Rankings of
Per Capita Health Expenditures and Perinatal Mortality Rates
Atlantic Provinces, Saskatchewan, Manitoba and Canada
1985/86

	1986 Perinatal Mortality Rates				1985 Per Capita Health Expenditure	
	Males		Females			
	Rate	(Rank)	Rate	(Rank)	$	(Rank)
Newfoundland	9.6	(3)	8.6	(4)	1,282	(5)
PEI	8.2	(1)	6.3	(1)	1,279	(6)
Nova Scotia	10.7	(5)	9.0	(5)	1,431	(3)
New Brunswick	10.9	(6)	9.2	(6)	1,354	(4)
Saskatchewan	8.8	(2)	7.5	(2)	1,523	(2)
Manitoba	10.0	(4)	7.9	(3)	1,616	(1)
Canada	9.1	--	7.7	--	1,568	--

Note: Perinatal Ranks: (1) fewest deaths.
Per Capita Expenditures: (1) greatest amount spent per capita.

Source: Perintal data: Statistics Canada (1986), Mortality Summary List of Causes, Vital Statistics Volume III, Catalogue 84-206, Ottawa: Supply and Services Canada.

Per Capita data: see Table 1.

Table 16
Percentage Distribution of Major Causes of Death
Atlantic Provinces, Saskatchewan and Manitoba
1986

	(%)				
	Heart Dis.	Cancer	Cerebrovascular Dis.	Respiratory Dis.	Accidents
NFLD	35	23	9	7	5
PEI	36	25	9	8	7
NS	34	25	7	9	6
NB	35	25	7	8	7
SASK	31	23	8	10	8
MAN	32	25	8	9	7

Source: Statistics Canada (1986), Mortality Summary List of Causes, Vital Statistics, Volume III, Catalogue 84-206, Ottawa: Supply and Services Canada.

Table 17
Comparison of Rankings* of
Per Capita Health Expenditures and Rates of Death by Major Causes
Atlantic Provinces, Saskatchewan and Manitoba
1985/86

	NFLD	PEI	NS	NB	SASK	MAN
Per Capita Health Expenditure	5	6	3	4	2	1
Heart Disease						
Males	4	1	3	2	6	5
Females	1	5	2	3	6	4
Cancer						
Males	5	3	1	2	6	4
Females	5	1	2	4	6	3
Cerebrovascular Disease						
Males	2	1	4	6	5	3
Females	1	3	6	2	5	4
Respiratory Diseases						
Males	6	5	1	2	4	3
Females	4	5	2	6	1	3
Accidents						
Males	6	2	5	3	1	4
Females	6	4	5	3	1	2

Note: * Comparing provinces: "1" being the province spending the greatest amount per capita on health and "1" being the province with the highest rate of death due to that cause.

Source: 1985 Per Capita Health Expenditures, see Table 1.

Age Standardized Death Rates, see Statistics Canada (1986), Mortality Summary List of Causes Vital Statistics Volume III, Catalogue 84-206, Ottawa: Supply and Services Canada.

Table 18
Comparison of Regional Disparities
In Risk of Premature Death and
Per Capita Health Expenditures
Relative to Saskatchewan
Atlantic Provinces and Manitoba, 1979-83

	1979-83 Excess Deaths as % of All Deaths Prior to Age 75	1983 Per Capita Health Expenditures ($)	(Ranking)
PEI	2.4	1,160	(6)
Newfoundland	6.9	1,187	(5)
Manitoba	7.7	1,408	(1)
New Brunswick	12.0	1,233	(3)
Nova Scotia	15.8	1,218	(4)
Saskatchewan	---	1,366	(2)

Source: see Table 1.

Wigle, D.T., J.W. Davies, Y. Mao and R. Semenciw (1988), "Declining Risk of Death in Canada: Achievement and a Challenge," Chronic Diseases in Canada, 8:1:4-6.

Table 19
Comparison of Disability Rates and
Per Capita Health Expenditures
Atlantic Provinces, Saskatchewan and Manitoba
1983/84

	Disability Rate	Per Capita Health Expenditures ($)	(Ranking)
Saskatchewan	14.4	1,460	(2)
Nova Scotia	14.3	1,340	(3)
New Brunswick	14.1	1,309	(4)
Newfoundland	13.8	1,231	(5)
Manitoba	13.0	1,521	(1)
PEI	10.8	1,206	(6)

Source: See Table 1.

Statistics Canada (1986), Report of the Canadian Health and Disability Survey 1983-84, Ottawa: Supply and Services Canada.

Table 20
Comparison of Per Capita GDP and
Per Capita Health Expenditures
to Average Number of Alcoholic Drinks Consumed per Week
Atlantic Provinces, Saskatchewan and Manitoba
1985

	Per Capita GDP		Per Capita Health Expenditure		Average # Drinks Per Week	
	#	(Rank)	#	(Rank)	#	(Rank)
Newfoundland	11,221	(5)	1,282	(5)	4.63	(4)
PEI	10,560	(6)	1,279	(6)	3.38	(6)
Nova Scotia	13,601	(3)	1,431	(3)	5.05	(2)
Manitoba	16,916	(2)	1,616	(1)	5.50	(1)
New Brunswick	12,530	(4)	1,354	(4)	3.94	(5)
Saskatchewan	17,208	(1)	1,523	(2)	4.85	(3)

Source: Per Capita data: see Table 1.

Health and Welfare Canda (1988), Canada's Health Promotion Survey: Technical Report, Eds. I. Rootman, R. Warren, T. Stephens and L. Peters, Ottawa.

APPENDIX B

TABLES FOR SPECIFIC CHARTS

Table for CHART 5
Index of Changes in Provincial Government Health Expenditures
Atlantic Provinces, Saskatchewan and Manitoba
Selected Years
1974-75 - 1988-89*

	1974-75 ($)	1974-75	1979-80	1984-85	1988-89*
Newfoundland	($174,712)	100.0	176.3	307.4	401.4
PEI	($35,673)	100.0	179.9	331.5	429.1
Nova Scotia	($229,710)	100.0	185.7	365.6	485.0
New Brunswick	($170,057)	100.0	204.5	402.5	527.1
Saskatchewan	($260,081)	100.0	202.9	380.0	501.3
Manitoba	($315,622)	100.0	184.9	355.4	482.1

Note: Base year 1974-75 = 100.0
* Preliminary data

Source: See Tables 3 a - f

Table for CHART 7
Rate of Population Growth
Canada, Atlantic Provinces, Saskatchewan and Manitoba
1961-1987

	Canada	Newfoundland	PEI	Nova Scotia	New Brunswick	Saskatchewan	Manitoba
Rate of Growth (%)	40.5	24.1	21.7	19.2	19.1	9.6	17.1

Source: Statistics Canada (1988), Postcensal Annual Estimates of Population, Ottawa: Supply and Services Canada.

Statistics Canada (1987), The Nation: Populations and Dwelling Characteristics, Ottawa: Supply and Services Canada.

Table for CHART 8
Proportion of the Population Under 15 Years of Age and 65+
Canada, Atlantic Provinces, Saskatchewan and Manitoba
1961 and 1987

(%)

	CND	NFLD	PEI	NS	NB	SASK	MAN
Less than 15 Years							
1961	33.9	41.8	36.0	34.8	38.0	34.0	32.6
1987	21.2	25.2	23.1	21.1	22.4	24.3	22.2
65 Years +							
1961	7.6	5.9	10.4	8.6	7.9	9.2	9.0
1987	10.9	9.0	12.7	12.1	11.4	12.9	12.7

Source: Statistics Canada (1988), Postcensal Annual Estimates of Population, Ottawa: Supply and Services Canada.

Statistics Canada (1987), The Nation: Populations and Dwelling Characteristics, Ottawa: Supply and Services Canada.

Table for CHART 9
Average Total* and Seniors Dependency Ratios**
Canada, Atlantic Provinces, Saskatchewan and Manitoba
1961 and 1987

(%)

	CND	NFLD	PEI	NS	NB	SASK	MAN
1961 Average Total	71.2	91.3	86.8	76.6	84.7	76.3	71.2
1987 Average Total	47.2	52.0	55.8	49.7	50.9	59.4	53.7
1961 Seniors	13.1	11.3	19.5	15.2	14.5	16.3	15.5
1987 Seniors	16.0	13.7	19.8	18.1	17.1	20.6	19.6

Note: * Average Total Dependency Ratio = ratio of age groups 0-14 and 65+ to those aged 15-64.

** Seniors Dependency Ratio = ratio of age group 65+ to those aged 15-64.

Source: Statistics Canada (1988), Postcensal Annual Estimates of Population, Ottawa: Supply and Services Canada.

Statistics Canada (1987), The Nation: Populations and Dwelling Characteristics, Ottawa: Supply and Services Canada.

Table for CHART 10
Life Expectancy at Birth, Males and Females
Altantic Provinces, Saskatchewan, Manitoba and Canada
1980-82

	NFLD	PEI	NS	NB	SASK	MAN	CANADA
Males	71.9	72.8	70.9	71.0	72.4	72.2	71.8
Females	78.6	80.4	78.3	79.1	79.6	78.7	78.9

Source: Statistics Canada (1984), Life Tables Canada and Provinces1980-82, Catalogue 84-532, Ottawa: Supply and Services Canada.

Table for CHART 18
Public Hospital Beds per 1,000 Population
Canada, Atlantic Provinces, Saskatchewan and Manitoba
1976, 1981/82, 1985/86

	Beds per 1,000 Population		
	1976	1981/82	1985/86
Canada	8.1	7.3	6.7
Newfoundland	5.7	6.4	6.0
PEI	6.5	5.9	5.9
Nova Scotia	6.0	7.0	6.6
New Brunswick	6.2	6.3	7.2
Saskatchewan	8.6	7.3	7.2
Manitoba	6.3	6.3	6.1

Source: Statistics Canada, List of Canadian Hospitals, Ottawa.

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APPENDIX C

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HEALTH STATUS INDICATORS
and
DEMOGRAPHICS TRENDS
for
NOVA SCOTIA

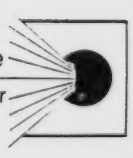
FINAL REPORT

Submitted to the
Nova Scotia Royal Commission
on Health Care

May 1989

Kathryn Tregunna
Douglas E. Angus
Pran Manga

Institute for Health Care Facilities of the Future
Institut pour l'établissement de santé de l'avenir



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* * *

I. INTRODUCTION

The information contained in this report is intended to serve as background for a more complete understanding of health status, demographic and economic issues. It is hoped that this document will provide the Nova Scotia Royal Commission on Health Care (the "Commission") with a reasonably comprehensive picture of health, health status and utilization of health care services in Nova Scotia.

To this end, the report is divided into sections on population trends, health status, health care delivery, and utilization. The concluding section, "summary and recommendations, highlights major gaps in information and data and outlines recommendations regarding data collection and measurement which could be considered by the Commission.

To make the numbers and trends discussed in this report readable and informative, much of the information is displayed in chart form. Charts referred to in the text can be found at the end of the relevant section, e.g., population trends, or health status. Tables providing detailed data on the various topics covered in the report can be found in Appendix A.

Throughout the report, the health parameters and trends of the other Atlantic Provinces, Saskatchewan, Manitoba and Canada are outlined with Nova Scotia so as to provide a context for considering the parameters and trends in Nova Scotia.

II. POPULATION TRENDS

Health status, utilization, and the delivery of health care services are related to various population characteristics. It is important to start with a good understanding of the population served by the health care system and its trends at different geographic levels.

Historically, of the six provinces studied, from 1961 to 1987, the largest rates of growth in the total population were in Newfoundland (24%), Prince Edward Island (22%), Nova Scotia and New Brunswick (both 19%), Manitoba (17%) and Saskatchewan (10%). Compared to the Canadian growth rate of almost 41%, these changes were considerably lower, see Tables 1A-G and Charts 1A-E.

When analysing the potential impact of demographic change on future health care expenditures and financing, it is important to remember that health expenditures are highest for the very young and the very old. In terms of financing health care, it is important to assess the ability of the productive population to support the expenditures generated by the young and the old. Thus, changes in the age structure can be significant both in terms of those

who will be demanding services and those who will have to support these dependents.

While much of the current interest in health care is focused on the elderly population, it is also important to examine the trend which has been occurring at the other end of the age spectrum. Decreases in the proportion of children under age 15 from 1961 to 1987 have been most noticeable in Newfoundland (41.8% to 25.2%), Nova Scotia (34.8% to 21.1%) and New Brunswick (38.0% to 22.4%), see Tables 1A-G and Charts 1A-E..

In terms of the elderly population, from 1961 to 1987, the most significant increases in the proportion of the population aged 65 and over were in Manitoba (9.0% to 12.7%), Saskatchewan (9.2% to 12.9%), Nova Scotia (8.6% to 12.1%) and New Brunswick (7.9% to 11.4%). Overall, Prince Edward Island's population has been "older" than those in the other provinces, see Tables 1A-G and Charts 1A-E.

It should come as no surprise that both the Canadian population as a whole and the senior population is aging, see Charts 2A-B and Table 2. Since 1941, Canadians aged 65-74 have increased from 4.6% of the population to 6.7% in 1987; for those 75-84 the increase has been from 1.8% to 3.3%; and for those 85+ there has been an increase from 0.3% of the Canadian population to 0.9%. While changes from 1941-1981 have been significant, (see Chart 2A), steady increases have continued on a yearly basis through the eighties, see Chart 2B. In some parts of the country, this "greying" trend is more pronounced than in others.

In 1987, for Canada as a whole, the proportion of the population aged 65 and older was 11%. New Brunswick had a similar percentage of its population 65+ (11.5%). Saskatchewan (13%), Prince Edward Island (13%), Manitoba (13%) and Nova Scotia (12%) all had somewhat greater proportions of their population in this age group. In terms of the age distribution of the population, both Nova Scotia and New Brunswick are very similar, see Chart 3 and Table 3.

Unlike the other provinces in this comparative examination of demographic and health status indicators, Saskatchewan shows a greater proportion of males to females in all age groups except for the 65+ category and in the age group 45 - 64, where there are almost an equal number of males and females, see Charts 4A-D and Tables 1A-F. Nationally, and in the other provinces under study, males outnumber females in the 0-14 and 15-24 age groups; by 25-44, the ratios are almost even; and then, for the 45-64 and 65+ groups, females outnumber the males. This may have ramifications in the development of health and social services according to whether the target groups are primarily single older females, single older males, or co-habiting older couples.

A more careful examination of the seniors' population in 1987 (Chart 5) reveals that Saskatchewan and Prince Edward Island have the highest proportions of people aged 75 - 84 and 85+. Reflecting its generally younger population, Newfoundland has the highest proportion of "young" seniors. The profile of senior citizens in Nova Scotia and New Brunswick is nearly identical. Not surprisingly, there are greater percentages of females in the older age groups in each of the provinces' senior citizens, see Table 4.

In summarizing the potential impact of an aging population, the OECD (1987) noted that countries with aging populations would be facing a significant increase in total health expenditures and per capita health expenditures, however, it was also noted that this conclusion assumes that all potentially cost-inducing factors are held constant. The report concludes that "given adequate growth in productivity and employment, the aggregate economic burden need not prove insuperable. But it could require significant reallocations of resources from other competing goals and a political willingness to provide the mechanisms which will accommodate such a shift in priorities," (OECD, 1987, p. 91).

Based on a medium Statistics Canada population projection set of assumptions (fertility rate of 1.66, international net migration of 50,000 per year, and an internal migration pattern of a gradual return to a westward flow), the Canadian population is expected to increase by 16% between 1983 and 2006, see Chart 6 and Table 5. Under these same assumptions, the population of Nova Scotia and New Brunswick might grow by about 6%, Newfoundland's by 10% and Prince Edward Island's by 5%. Manitoba's population may grow by 9%. These projections are quite different from the observed rates of growth mentioned earlier for the period 1961-1987, (in the order of 20% increases). The reverse is true for Saskatchewan's population which grew by only 10% between 1961 and 1987: the expected growth to 2006 may be just over 20%.

Based on the medium projection, between 1986 and 2006, the group aged 45 - 64 will experience significant growth, particularly in Newfoundland (over 100% increase), Prince Edward Island and New Brunswick (both over 80% increases), to a lesser extent in Nova Scotia and Saskatchewan (approximately 70% increases) and Manitoba (a 50% increase), see Tables 6A-G. Little change is expected in terms of the distribution of the population within Canada, except for a slight increase in the B.C. and Alberta populations, see Table 7.

The medium projection scenario assumes that the fertility rate will stabilize at its current value, i.e., projecting the observed plateau of recent years, see the discussion of fertility rates below. In terms of inter-provinicial migration, at the extremes, two scenarios were projected: 1) a continuation of existing trends, with Alberta and B.C. experiencing either a net migration loss or small

gains, and almost all other provinces experiencing net migration gains; 2) a gradual return to the 1974-1981 situation where the migrant population will gradually resume flowing to Alberta and B.C., but to a lesser extent than in 1974-1981, since an accompanying deep recession is not predicted to be repeated. A compromise, used in the medium projection, assumes a trend line in the middle of these two extremes. It is a medium migration assumption for all provinces, except Manitoba.

The other four projection scenarios outlined in Table 5 could also be considered. Projection 3 is the medium growth scenario discussed above and elaborated upon in Tables 1A-G. Projections 1 and 2 are low growth scenarios assuming a continued decline in fertility and the same net gain from international migration as Projection 3. Projection 4 assumes a stable fertility rate, but a doubling of the net gain in international migration. Projection 5, which is built on the assumption of a complete reversal in fertility rates and a doubling of the net gain in international migration trends, yields the highest growth rate.

Population projections can only be as good as their assumptions. Socio-economic and political factors can impact significantly on the assumptions related to fertility rates, international migration trends and interprovincial migration. The medium projection was chosen as a "possible future," however, any of the other projections, or even a new projections based on different combinations and permutations, may unfold in the future. While uncertain, projections do serve a purpose: they point to a direction, given certain parameters. Knowing the outcome, or direction, of a given set of parameters, efforts can be made to attain these parameters in order to maintain the direction, or to alter the direction by deliberately working to change the parameters.

A major factor accounting for the significant change in the age and sex structure of the Canadian population since the 1960s has been the unprecedented drop in fertility rates, see Charts 7A-B and Table 8. For each of the provinces under examination, the story is much the same. The major difference is in Saskatchewan, where the fertility rate is still above the replacement level of 2 children per woman.

Projections based on the assumption that the fertility rate will continue to fall predict that Nova Scotia's rate could decline to 1.4 by 1996; even Saskatchewan's could fall to 1.6, see Table 9. Further improvements in women's economic status, changes in marriage and divorce rates, and fewer unwanted pregnancies (due to better contraceptives, sterilization and other means of birth control) could result in lower fertility rates. One the other hand, based on high fertility assumptions, Canada and the provinces could return to just above replacement rates: Nova Scotia under this scenario could have a fertility rate of 2.2 by 1996. This scenario could be manifested through

increased births by people who may now be postponing rather than forgoing having children and by the "baby-busters" who may find themselves in a favourable economic position for marrying and having children earlier in their lives. An economic recovery would reinforce these effects. Also, if social policies were introduced which eased the dual pressures of working and parenting, impediments to childbearing may be decreased, (Statistics Canada, 1985, p. 18-20). One thing appears certain: for the foreseeable future, we will not see fertility rates the size of which resulted in the now famous "baby boom".

In 1981, females had 7.1 more years of life expectancy at birth than males. Projections of life expectancy to 1996 suggest that the gap in life expectancies between the sexes could narrow to 6.7 years, see Table 10. As will be noted later, changes in "healthstyle" behaviours among women (primarily as a result of smoking, alcohol consumption and dieting) are beginning to "catch up" with female life expectancy. Of the six provinces, life expectancy for males and females in Nova Scotia has been and is projected to continue to be the lowest of the six provinces and Canada. While life expectancy will increase between now and 1996, the relative ranking is not expected to change. Life expectancies at other ages, and international comparisons are discussed in more detail in the Health Status section.

Except for Prince Edward Island, the rate of marriages has been declining since 1971, see Chart 8. In 1987, Nova Scotia had the highest marriage rate of the five provinces, just ahead of PEI and Manitoba, see Table 11. Divorce rates show a different trend among these provinces. In both Newfoundland and Prince Edward Island the divorce rates are much lower than in other provinces, and between 1981 and 1986 have not altered noticeably, see Chart 9. While the divorce rate dropped somewhat in New Brunswick between 1981 and 1986, the divorce rate in Nova Scotia climbed by over 50% to 292 per 100,000 population during that same period, see Table 11. Manitoba's divorce rate in 1986 was similar to Nova Scotia's. In the six provinces under study, the divorce rate has been below the national average since 1961.

The implications of these marriage and divorce rates are in the area of living arrangements, the impact of which become greater as the population ages. Reflecting the changing marital status patterns, the proportion of lone-parent families in Canada has been climbing steadily since 1966 when it was 8.2% to 12.7% in 1986, see Table 12. From 1971 to 1986, an equally important trend is the growth of families without children living at home, which includes both families where children have left the house and childless families. The average number of children of "traditional" husband-wife families has dropped from 1.7 in 1971 to 1.2 in 1986. For lone-parent families, the rate of change has been less significant: 1.8 to 1.6 children, see Table 13. In changing circumstances such as these, the provision of care by family members to <u>both</u>

younger and older groups becomes more of an issue, especially as we will see, in light of changing societal roles for females and males.

The various living arrangements of the elderly will be important factors in future planning. In 1986, more than half of senior Canadians lived with a family member, almost one-tenth with relatives, and one-quarter alone. Only 9% of the total Canadian population 65 and older lived in an institutional setting. By age group, these proportions are quite different, see Table 14. Almost 18% of Canadian seniors 75 years of age and over were in institutions, and fewer than 40% lived with a family member. The proportion of Canadians 75+ living with a relative (12%) was almost double that for seniors between 65 and 74. Reflecting survival rates between men and women, 22% of people aged 65 - 74 lived alone while those over 75 years of age living alone climbed to over 30%.

For Nova Scotia in 1986, over 97% of seniors between the ages of 65 and 74 were living in private households, i.e., less than 3% were living in "collective dwellings," see Table 15. For Canada as a whole, this proportion was slightly more than 3.5%. Almost 21% of seniors 65 - 74 years of age in Nova Scotia lived alone; for those over 75 years of age this proportion climbed to over 28%. These rates are only slightly below the national averages of 22% and 30% respectively. By 75 years of age, almost 13% of Nova Scotia seniors are institutionalized. Although this proportion is lower than the Canadian average, it is still substantially higher than that for the younger seniors. With an aging population in general and an aging senior population, these trends must be carefully considered.

The myth that the majority of seniors live in institutions must be dispelled. However, Canada, with its high rate of institutionalizaion of the elderly, may be able to take some lessons from the international scene. An international comparison of the institutionalization rates of seniors is provided below in the Utilization section.

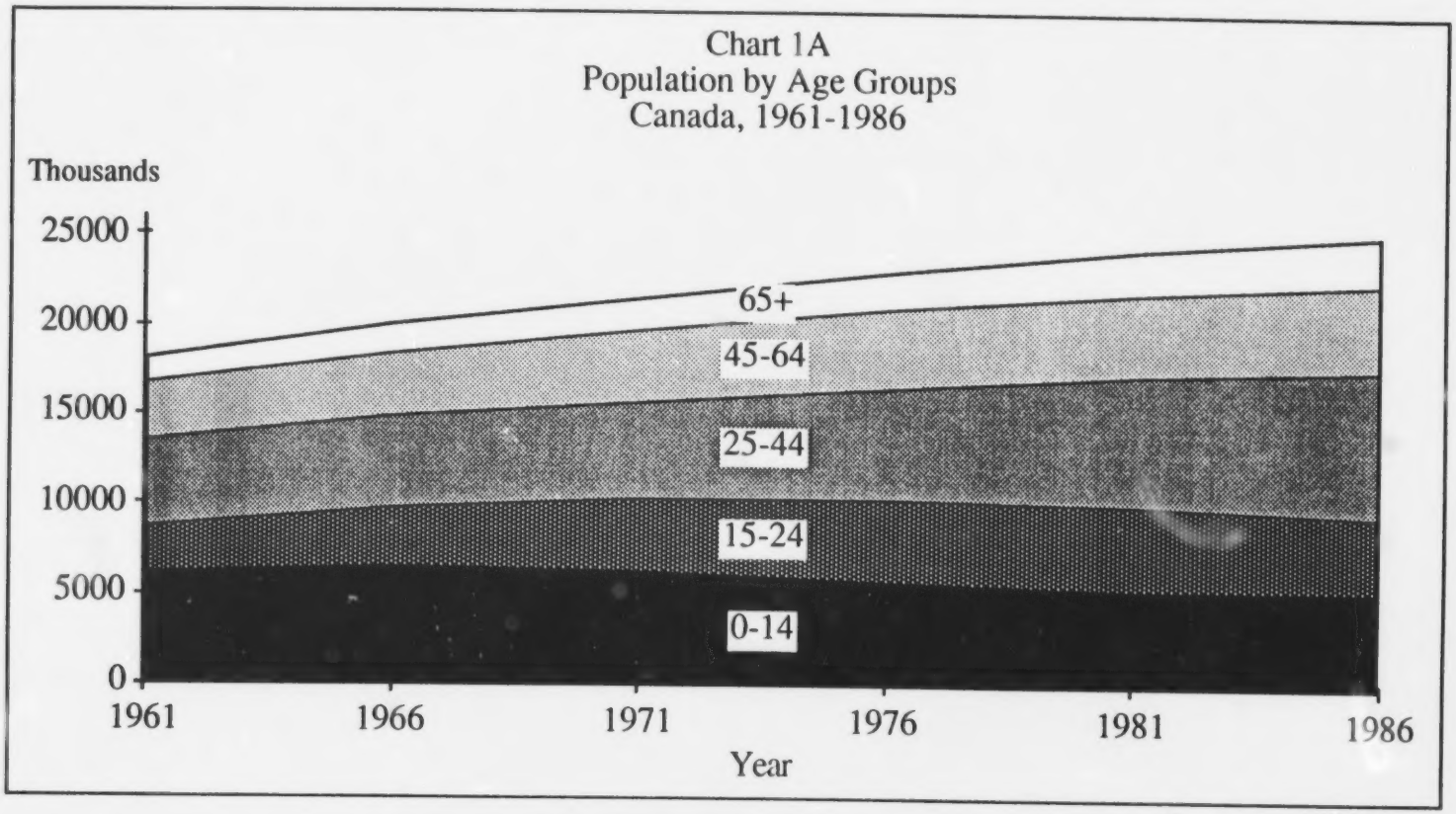
An important trend for the future, especially for such delivery alternatives as "home care", is the continuously growing female labour force participation rates, particularly for women in younger age groups. Overall in Canada, this rate has gone from 45% to just over 56% between 1976 and 1987, see Chart 10 and Table 16. While lower than the national average, in Nova Scotia, these participation rates for all women have, nonetheless shown a significant increase from 39% to 50%. Prince Edward Island has consistently had the highest female labour force participation rate of the Atlantic provinces, with rates similar to Saskatchewan and Manitoba. Nova Scotia ranks second of the Atlantic provinces. In the six provinces, the most significant increases in female labour force participation rates have been in the age group 25 - 54, and often also in the 20-24 age group, see Tables 17A-F and Charts 11A-F.

One final set of demographic trends which may have significance for overall health and social policies are the unemployment rates for males and females. Nova Scotia generally has had lower rates of unemployment compared to the other Atlantic provinces, and higher rates of unemployment than Manitoba, Saskatchewan and the national average, see Charts 12A-B and Table 18. Reflecting a problem which exists throughout much of Canada (although differences in degree exist), unemployment rates for the youngest members of the labour force (ages 15 - 24) have been significantly higher than for those in the prime-age group, see Charts 13A-B and Table 18.

Summary: Population Trends

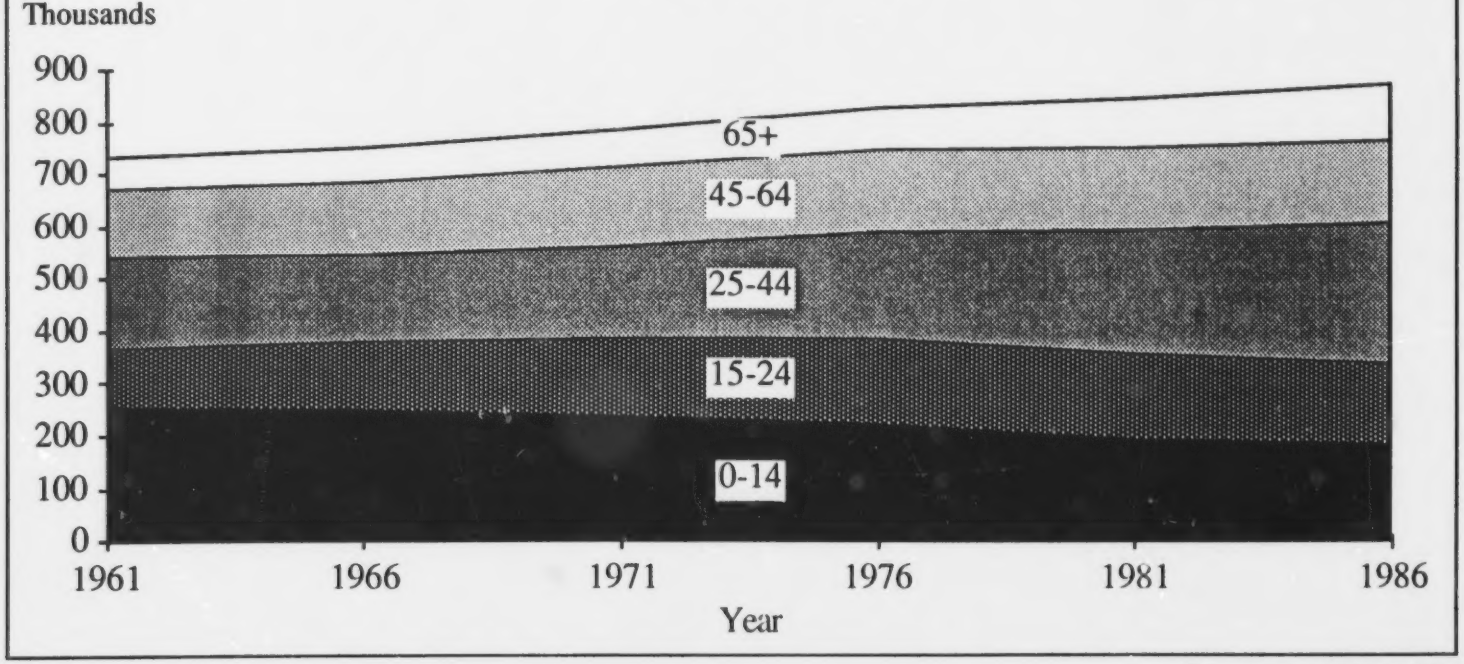
Changes in the age structure of the population (both the young and the old), trends in fertility rates and life expectancy, changes in marriage and divorce rates, household formations, and the socio-economic shifts reflected in the female labour force participation rates and the unemployment rates will all impact on the number, type and intensity of health care services required in the future. The significance of all of these demographic trends is that their impact will affect more than the health care sector. There likely will be demands for policies and spending in all areas of the social envelope, i.e., employment, education, social support, pensions, housing, as well as health care. Provincial governments will find it extremely difficult to fund all areas of needs to the levels which the population may want.

Chart 1A
Population by Age Groups
Canada, 1961-1986



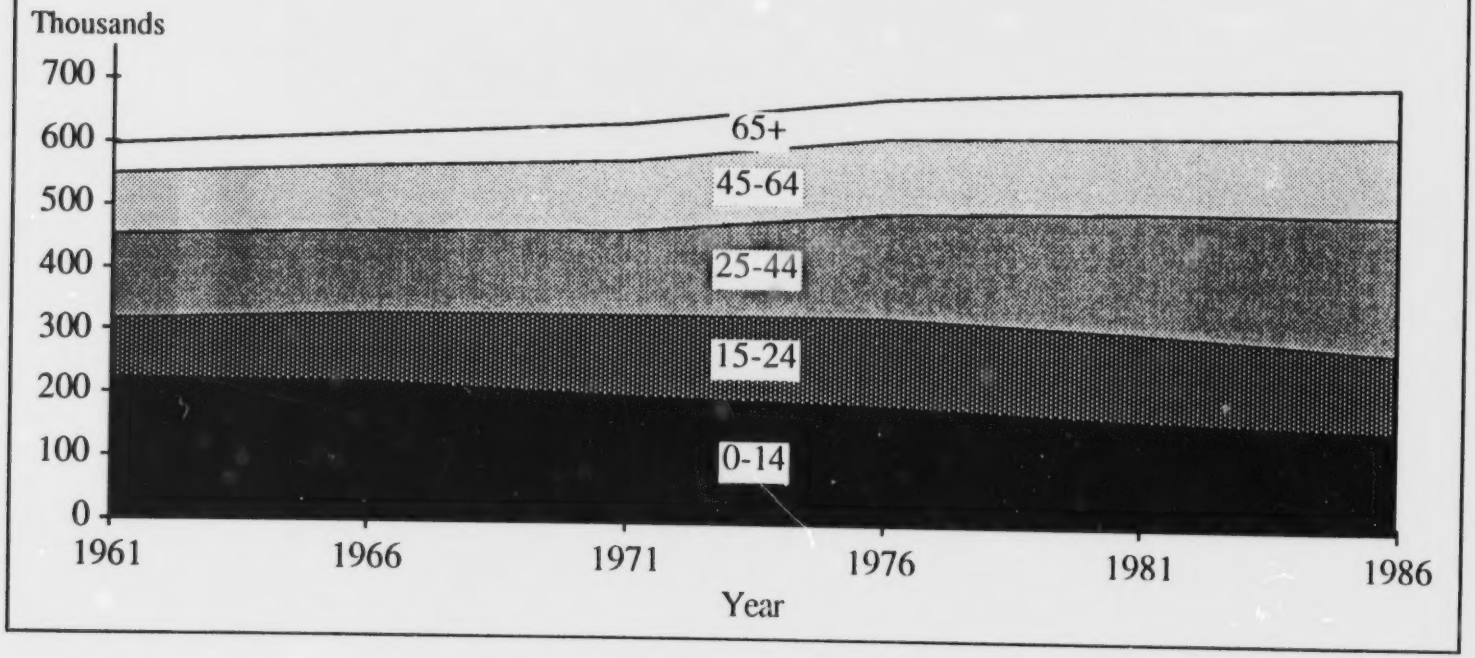
Source: see Table 1A

Chart 1B
Population by Age Groups
Nova Scotia, 1961-1986



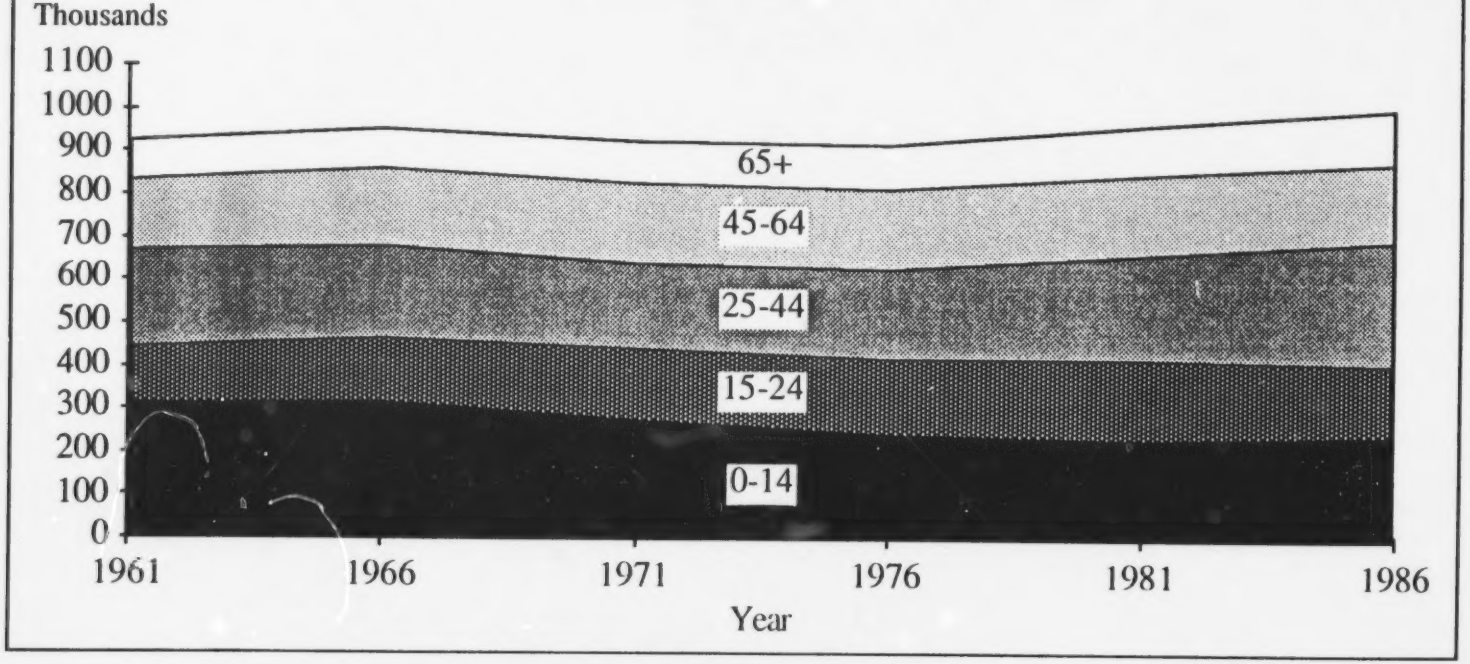
Source: see Table 1B

Chart 1C
Population by Age Groups
New Brunswick, 1961-1986



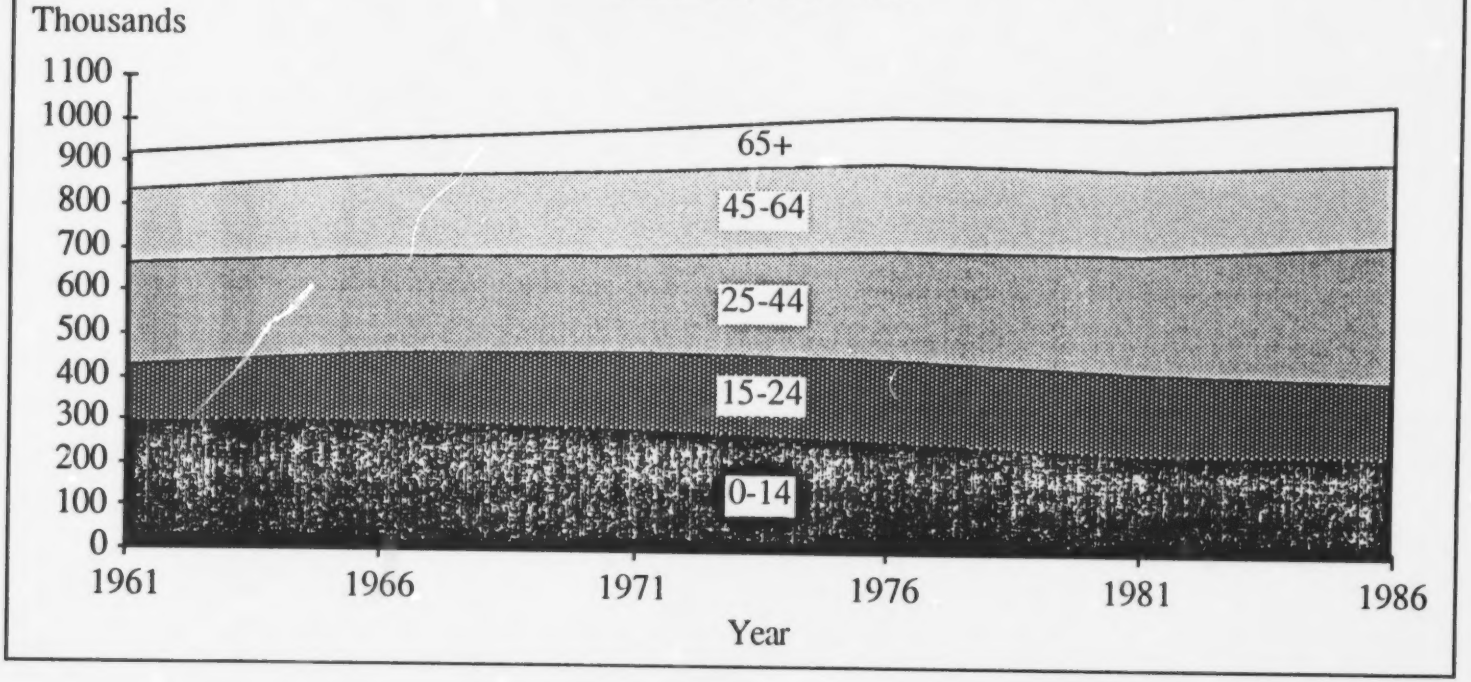
Source: see Table 1C

Chart 1D
Population by Age Groups
Saskatchewan, 1961-1986



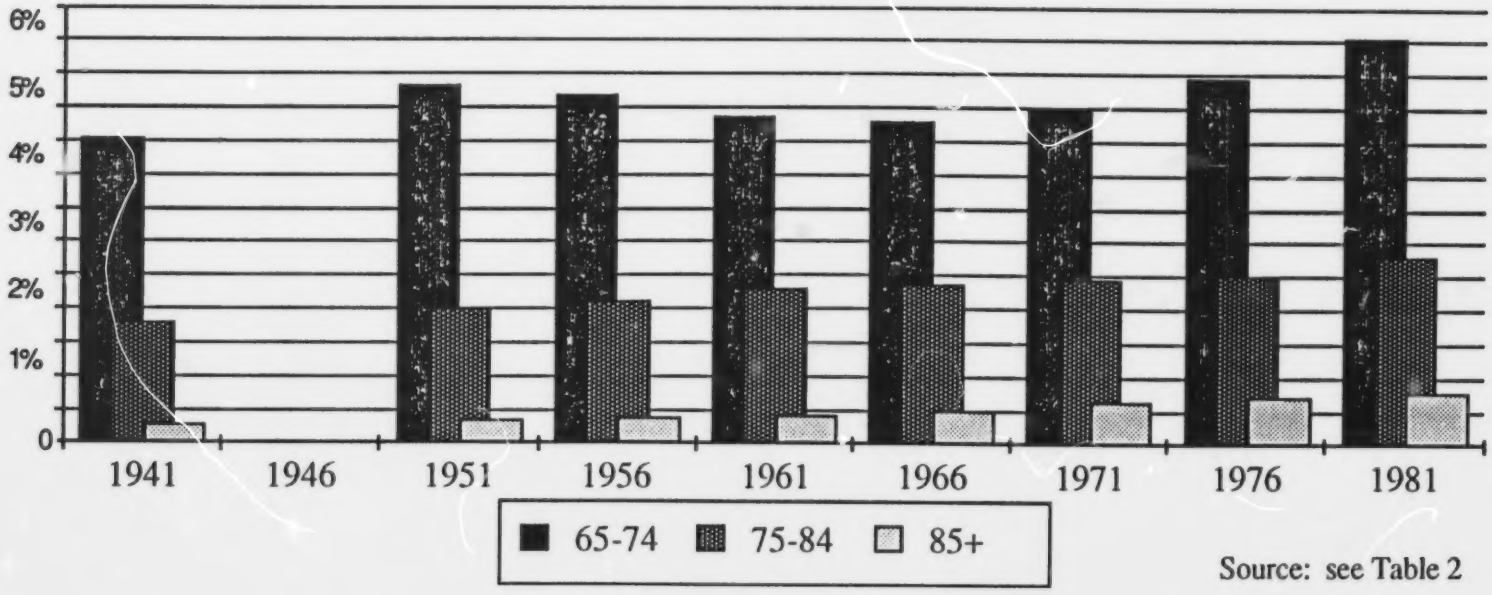
Source: see Table 1F

Chart 1E
Population by Age Groups
Manitoba, 1961-1986



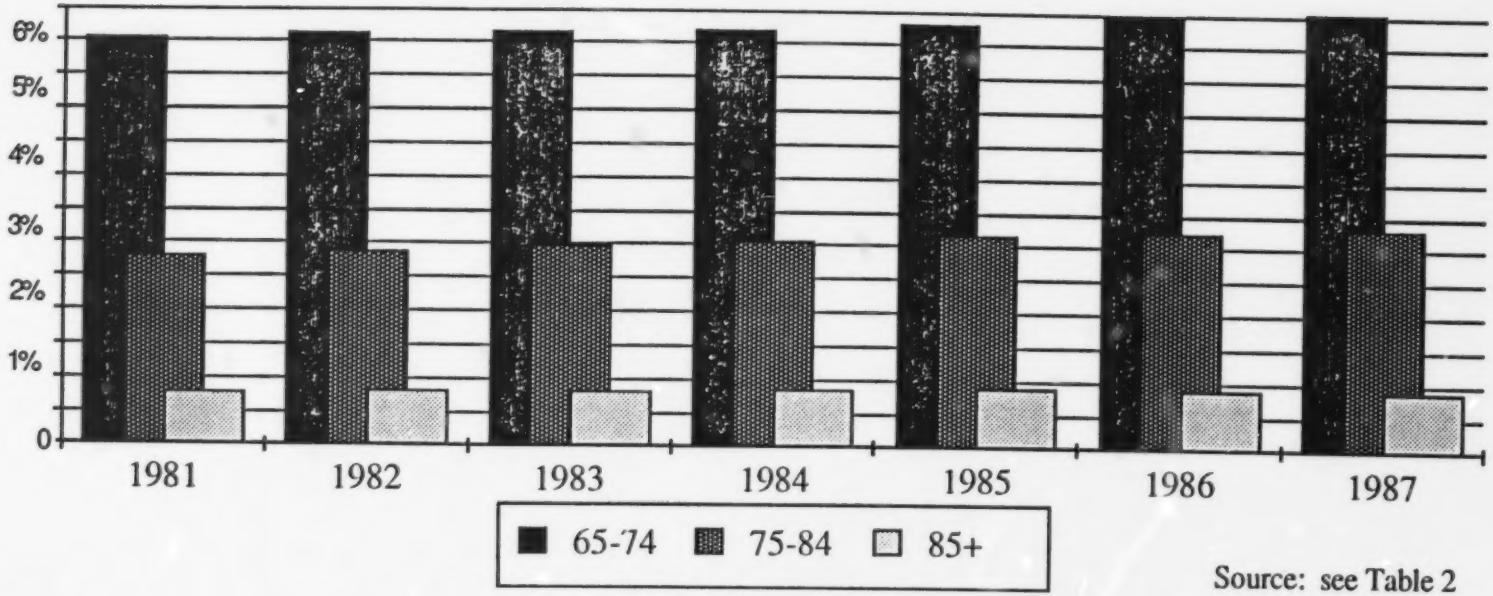
Source: see Table 1G

Chart 2A
Elderly Population as Percentage of
Total Population
Canada, 1941-1981



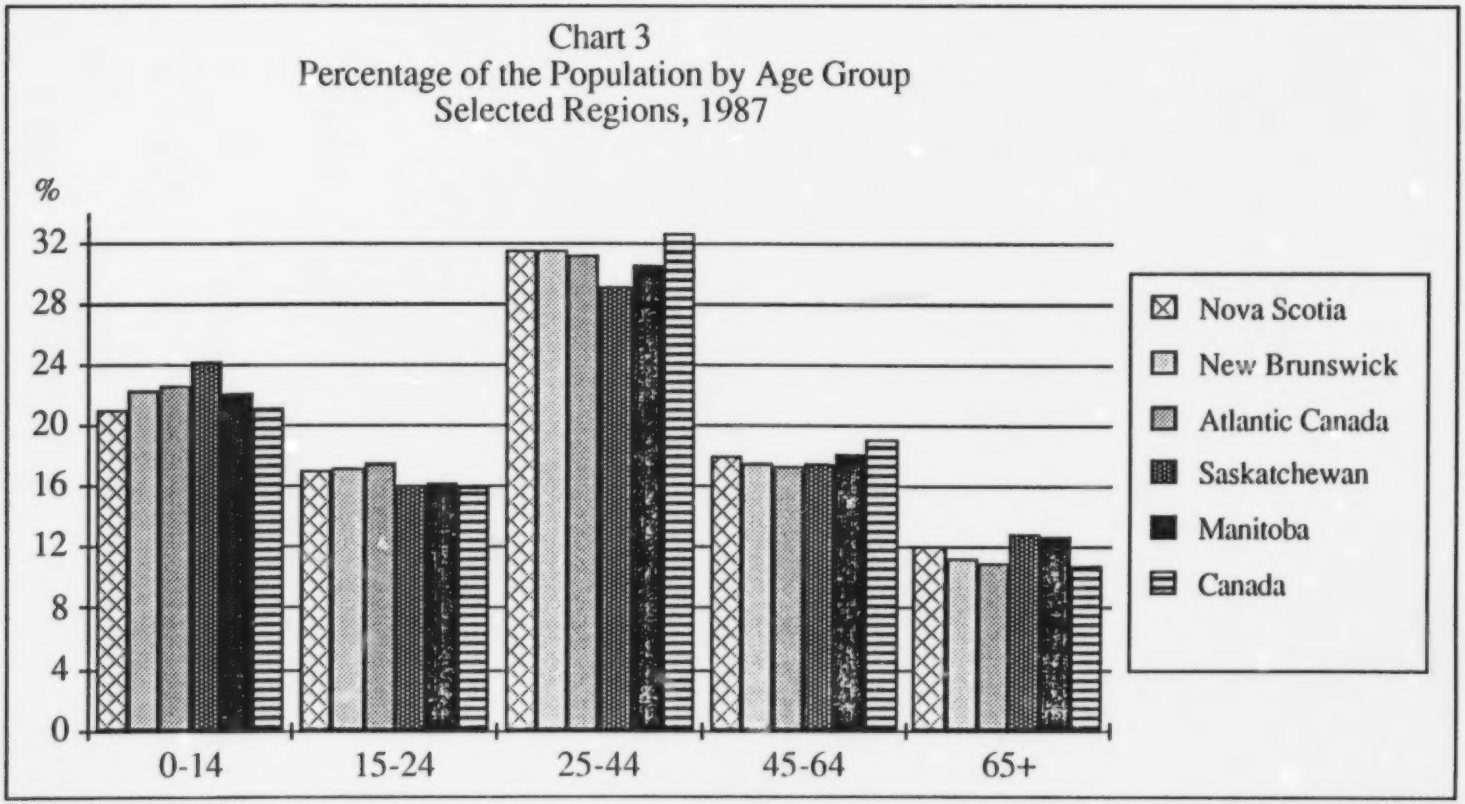
Source: see Table 2

Chart 2B
Elderly Population as Percentage of
Total Population
Canada, 1981-1987



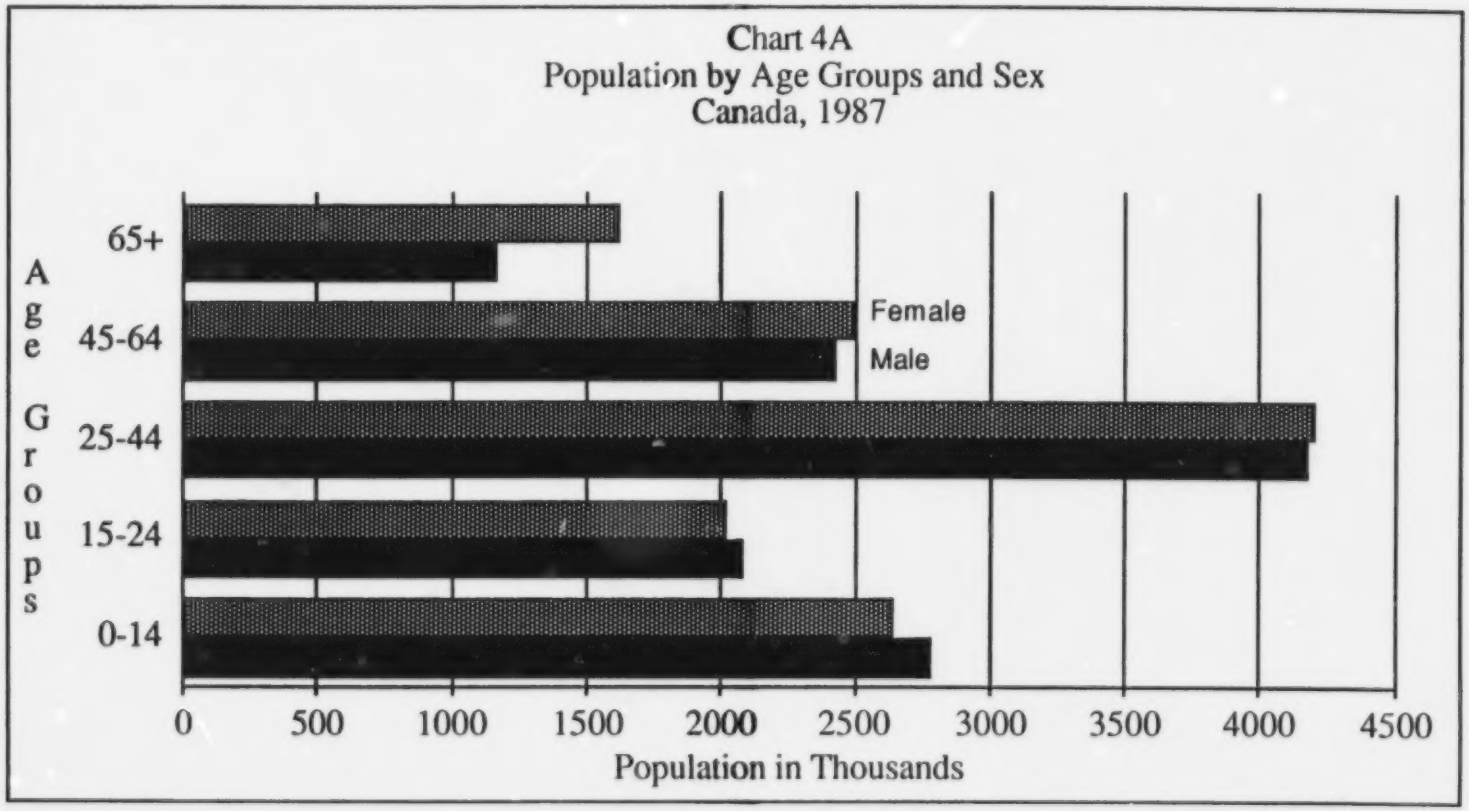
Source: see Table 2

Chart 3
Percentage of the Population by Age Group
Selected Regions, 1987

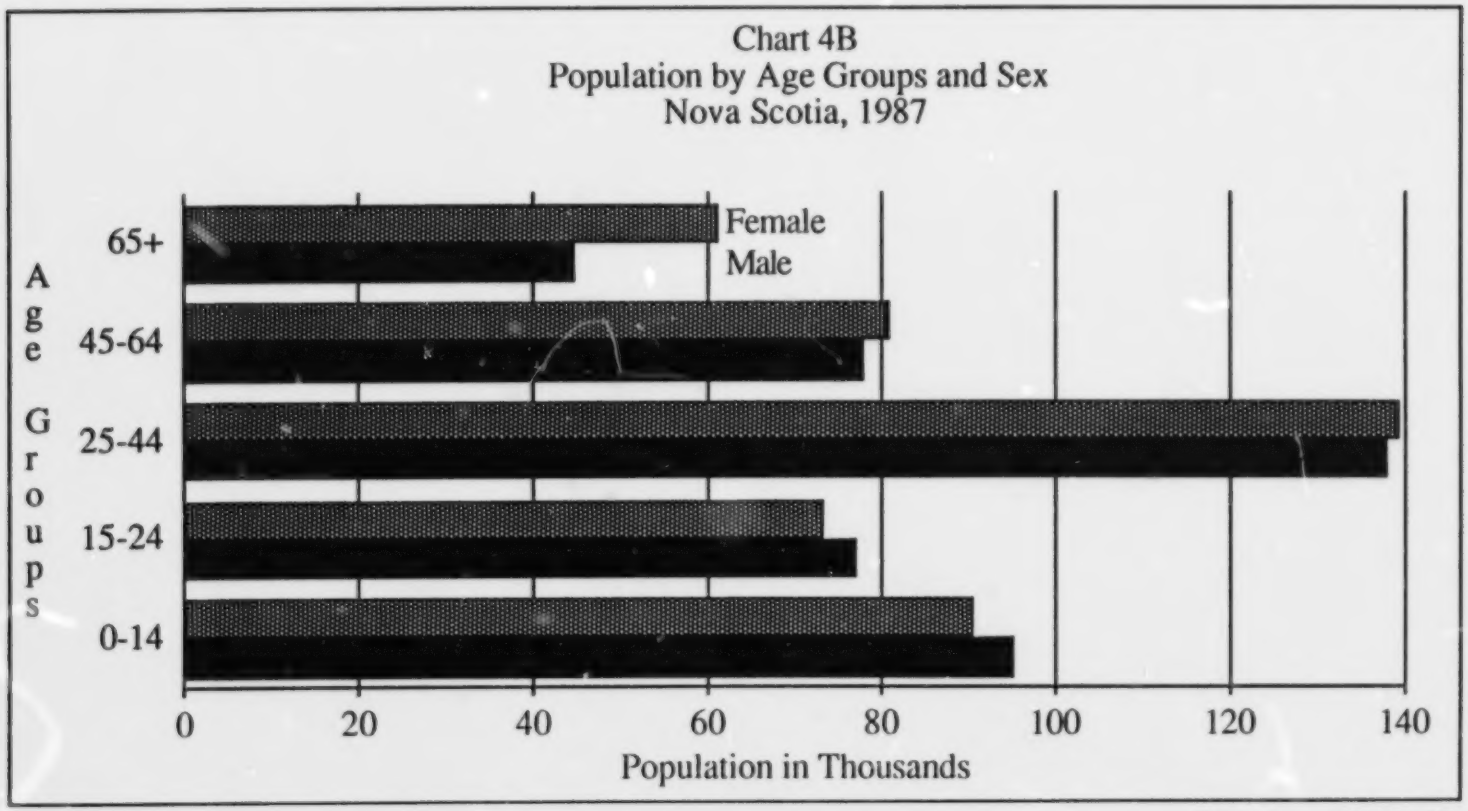


Source: Table 3

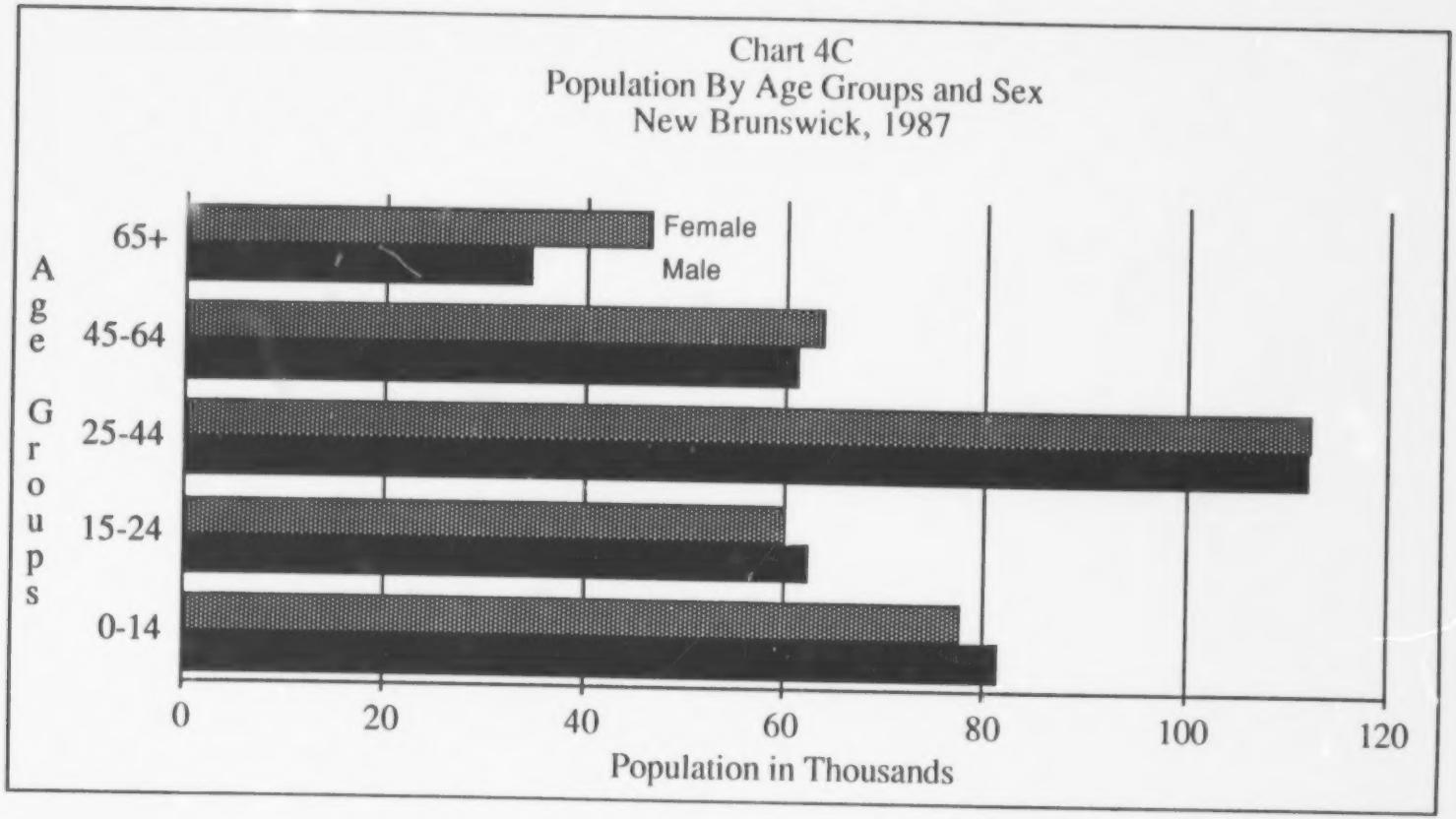
Chart 4A
Population by Age Groups and Sex
Canada, 1987



Source: see Table 1A

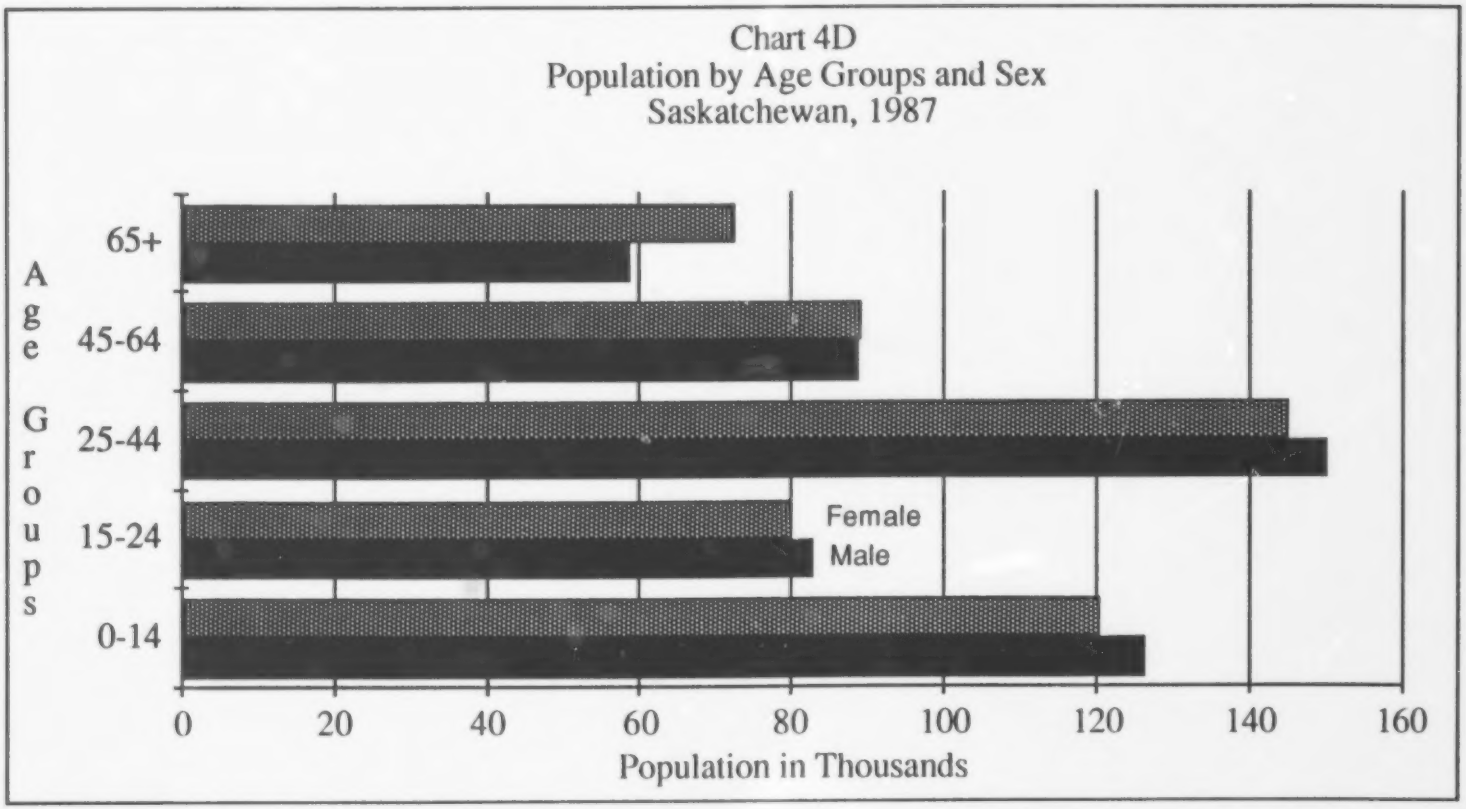


Source: see Table 1B



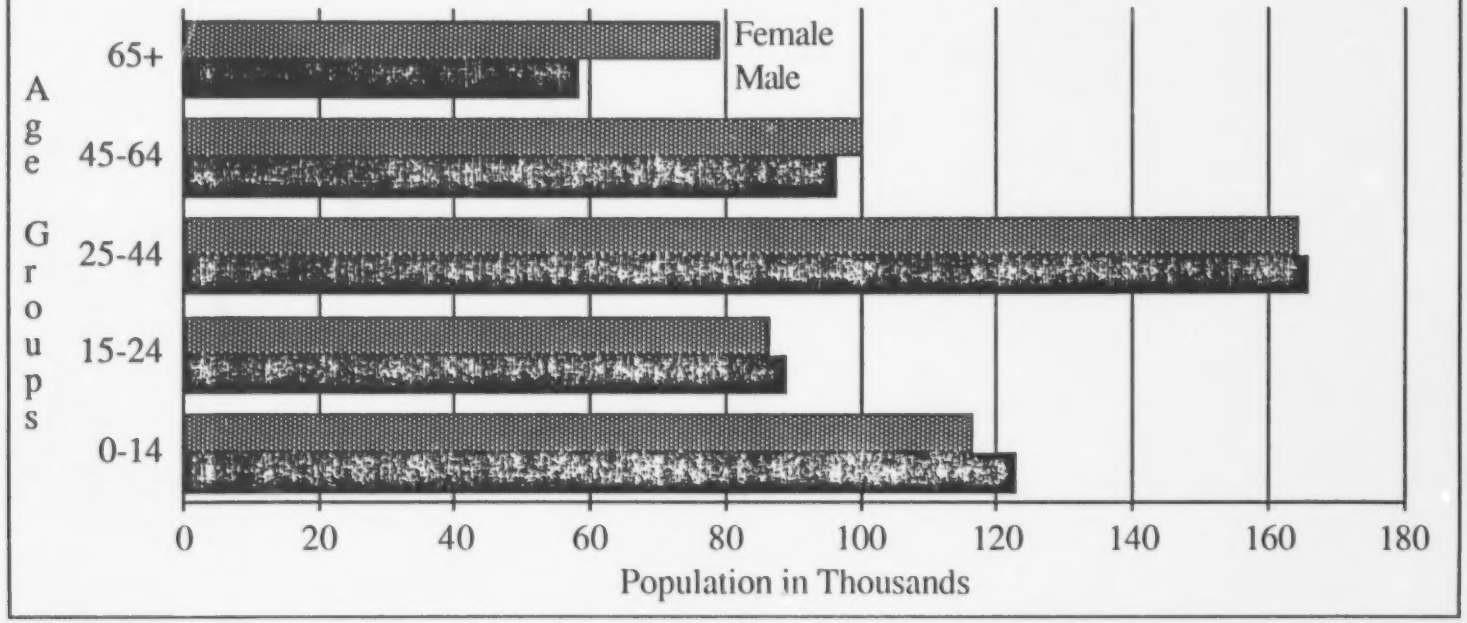
Source: see Table 1C

Chart 4D
Population by Age Groups and Sex
Saskatchewan, 1987



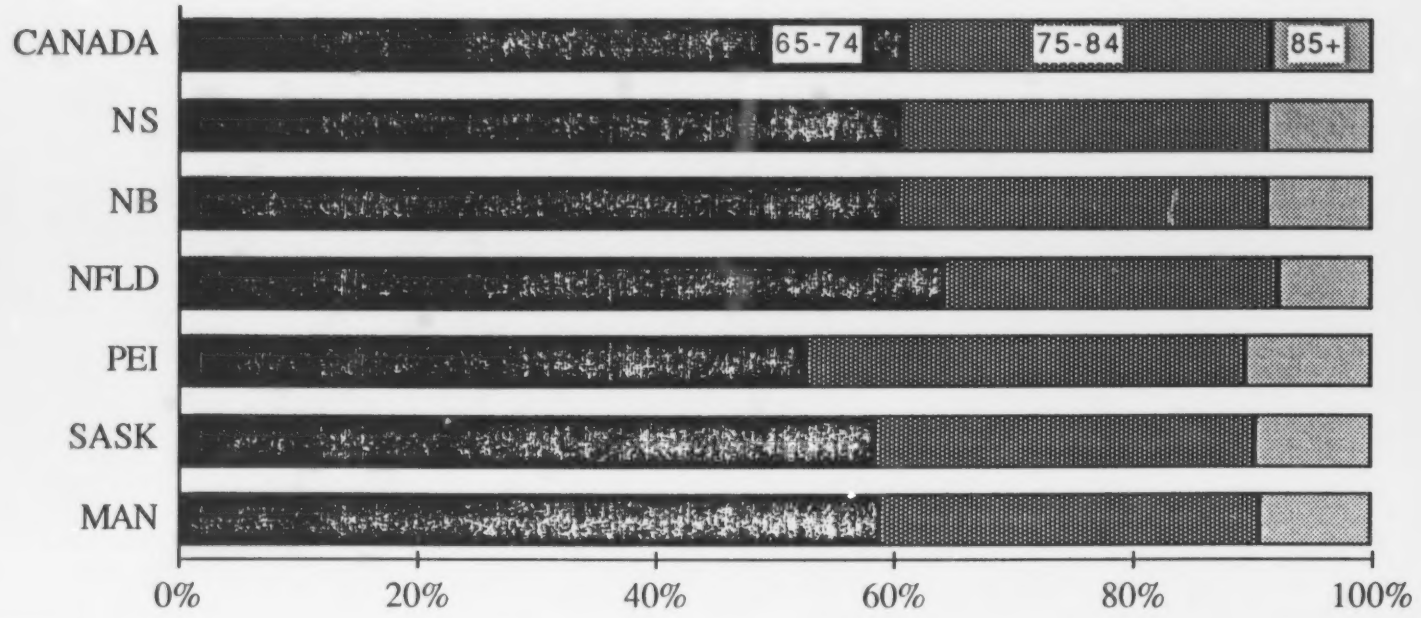
Source: see Table 1F

Chart 4E
Population By Age Groups and Sex
Manitoba, 1987



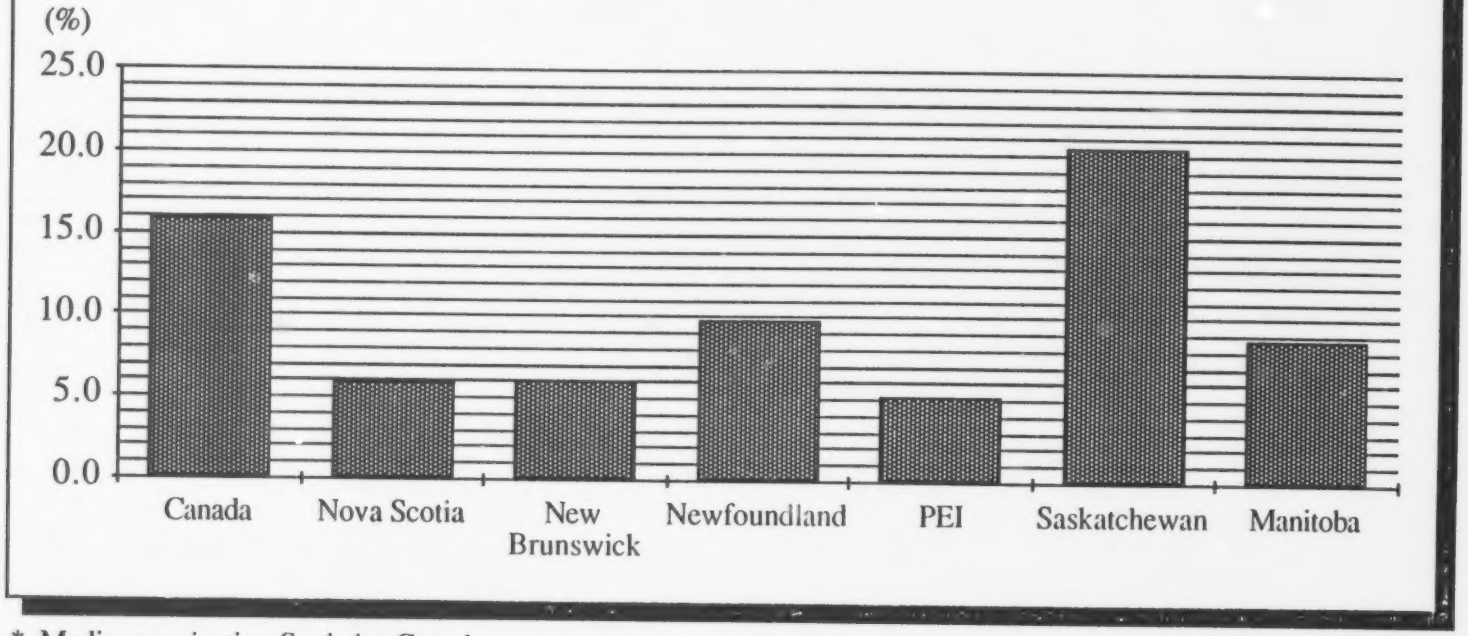
Source: see Table 1G

Chart 5
Age Composition of the Elderly Population
Atlantic Provinces, Saskatchewan, Manitoba and Canada, 1987



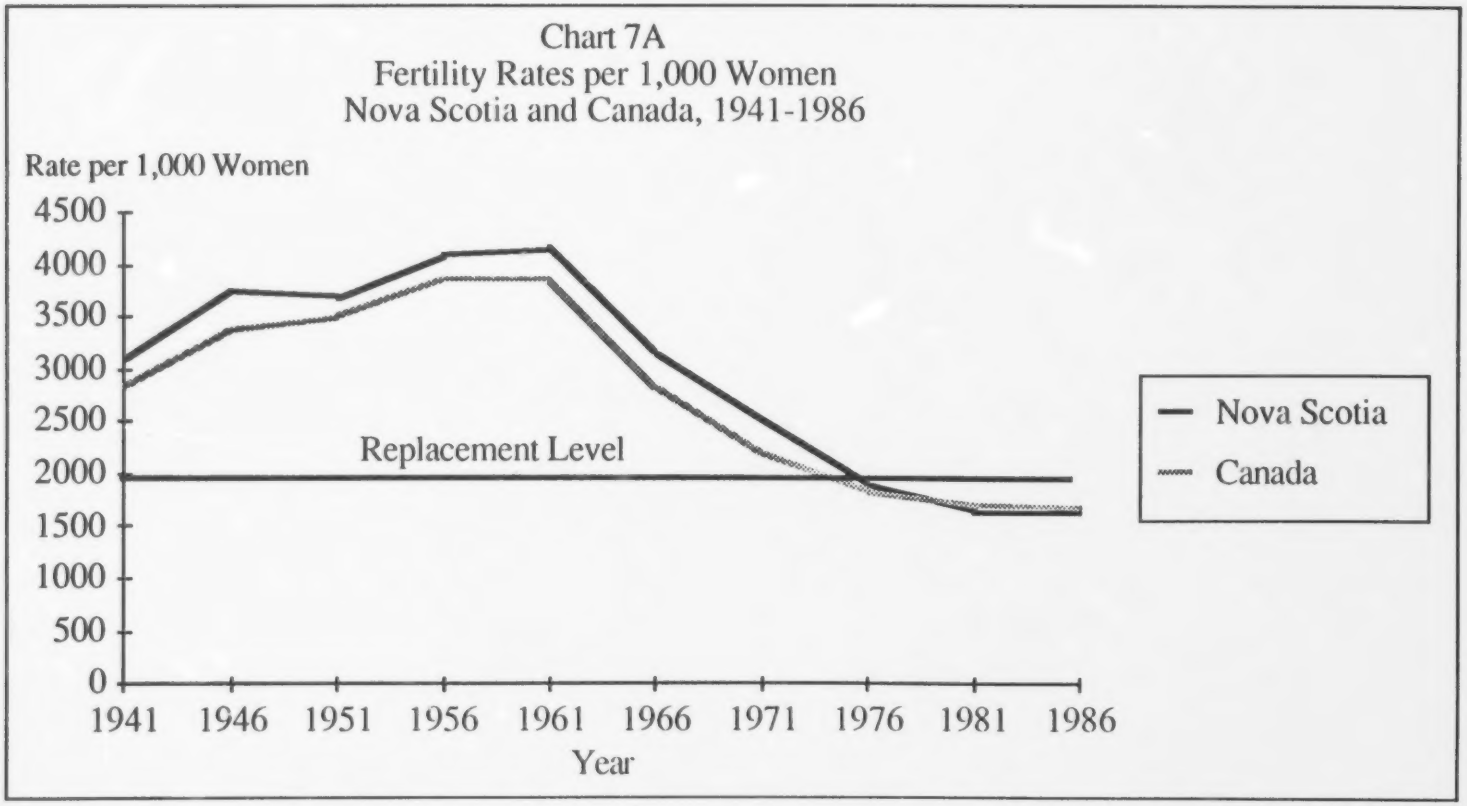
Source: see Table 4

Chart 6
Projected Growth Rate* of the Population
Canada, Atlantic Provinces, Saskatchewan and Manitoba
1983-2006



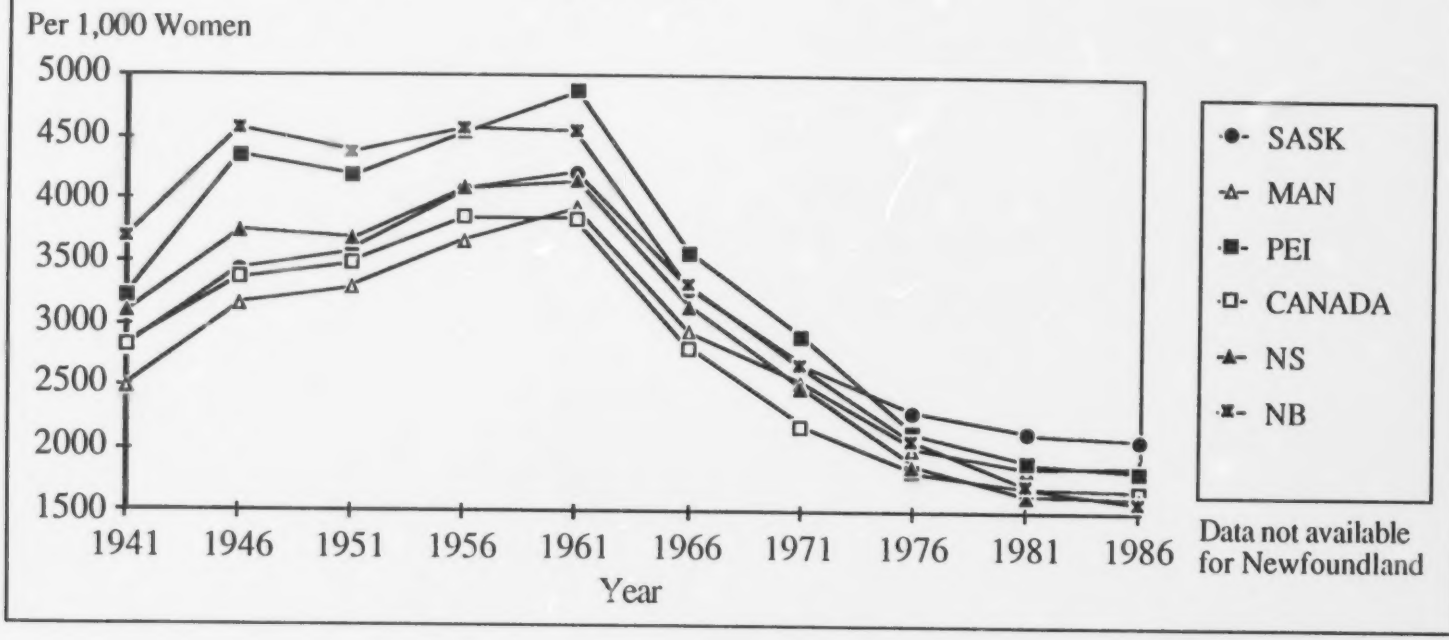
* Medium projection Statistics Canada

Source: see Table 5



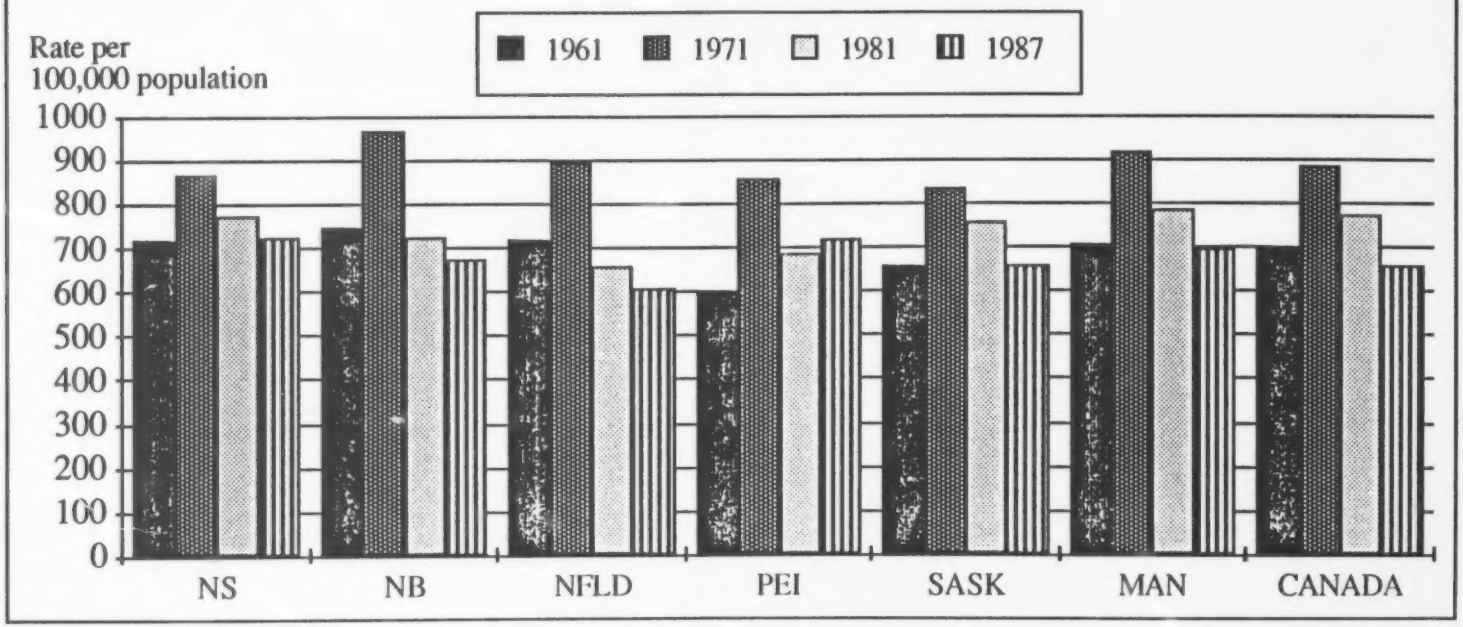
Source: see Table 8

Chart 7B
Fertility Rates
Canada and Selected Provinces
1941-1986



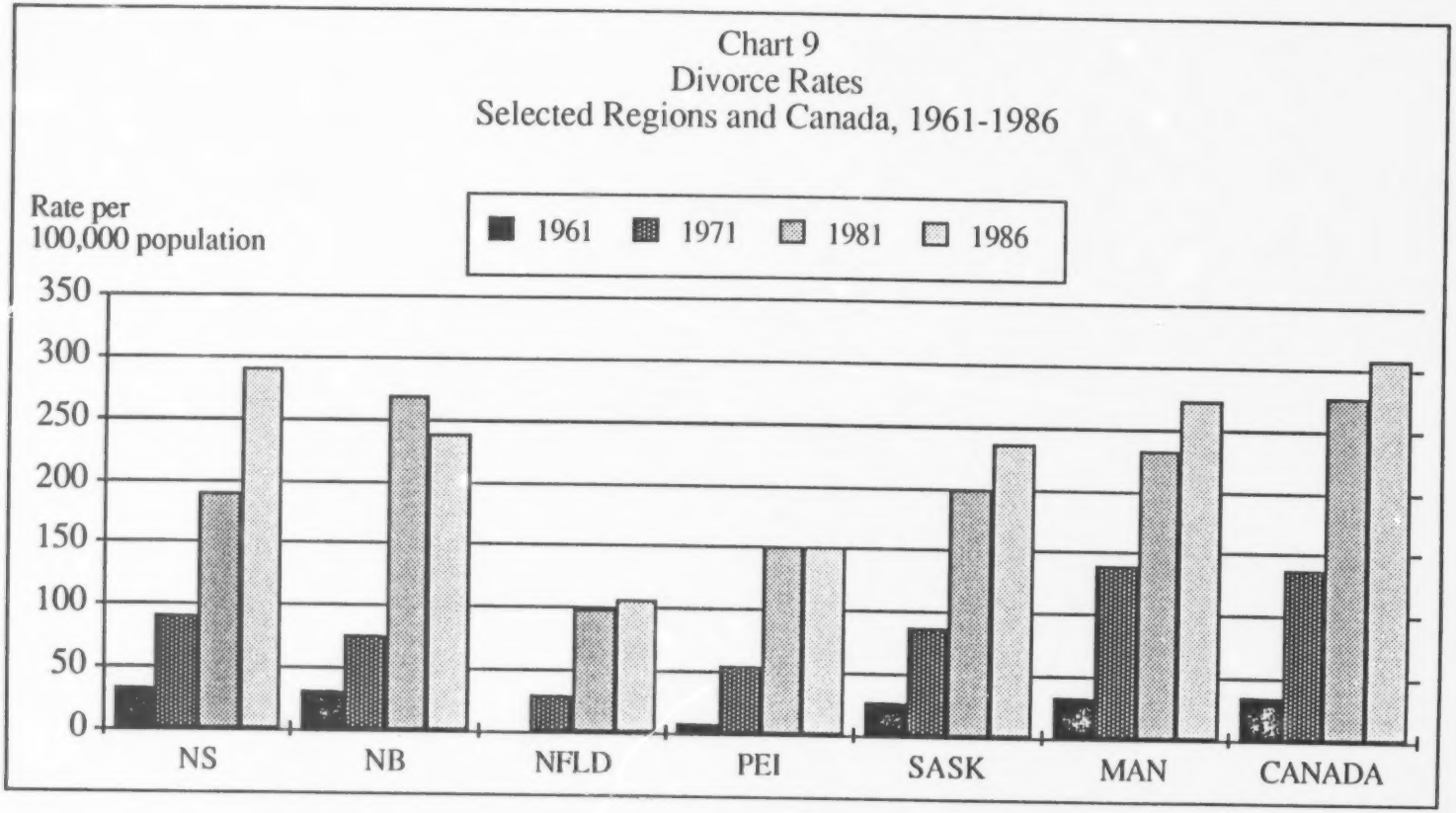
Source: see Table 8

Chart 8
Marriage Rates
Atlantic Provinces, Saskatchewan, Manitoba and Canada, 1961-1987



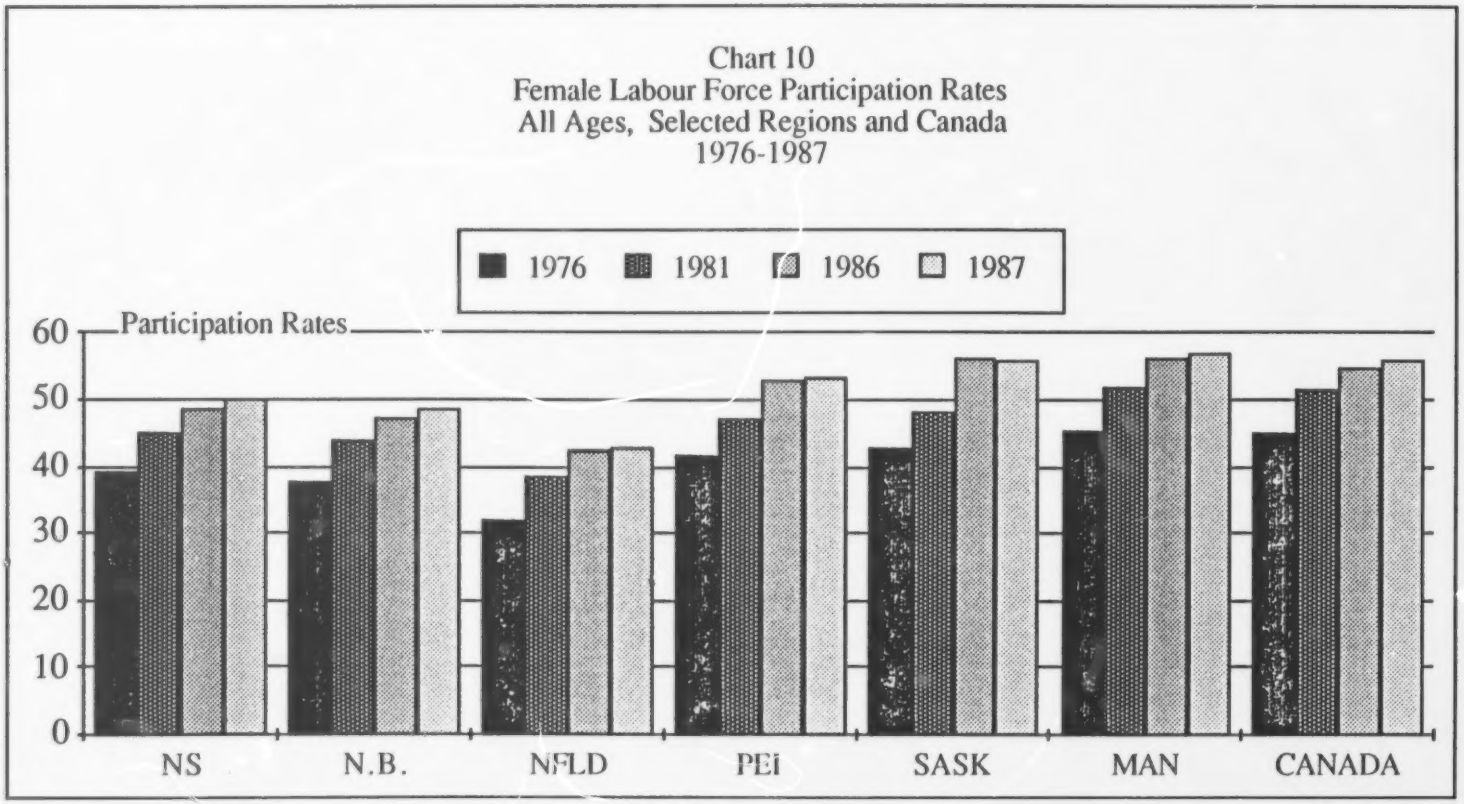
Source: see Table 11

Chart 9
Divorce Rates
Selected Regions and Canada, 1961-1986



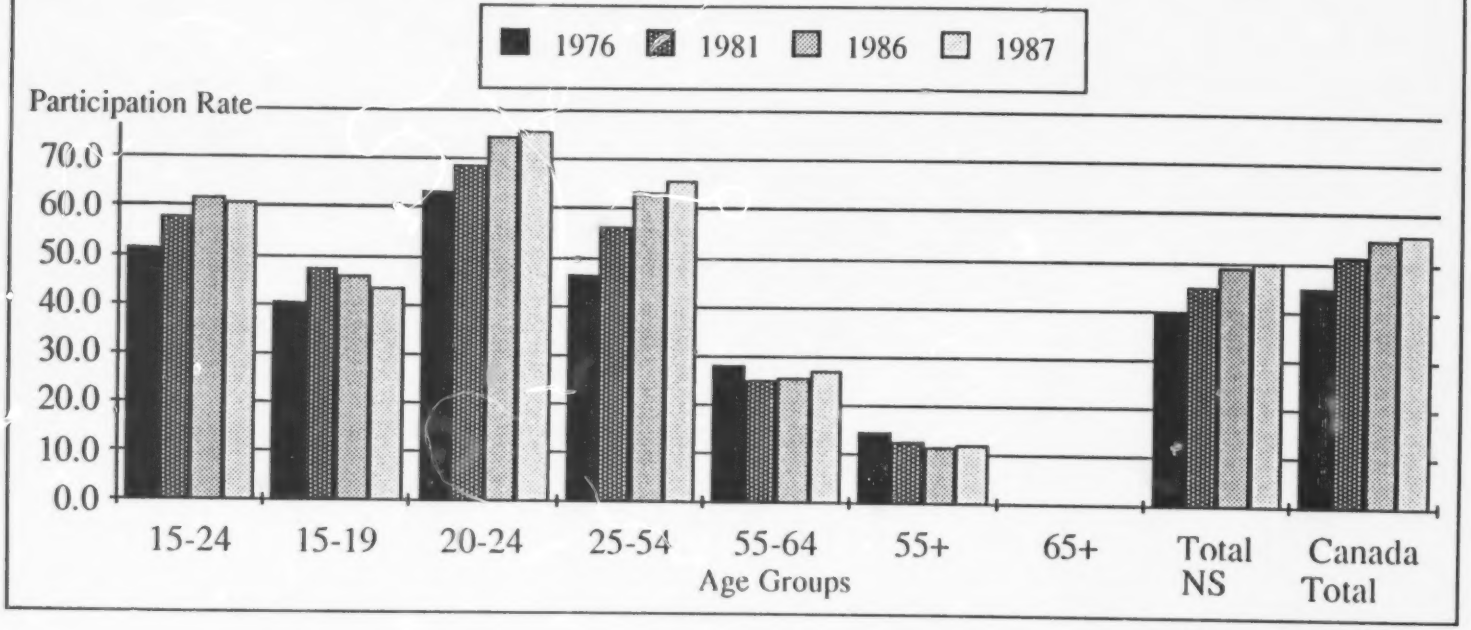
Source: see Table 11

Chart 10
Female Labour Force Participation Rates
All Ages, Selected Regions and Canada
1976-1987



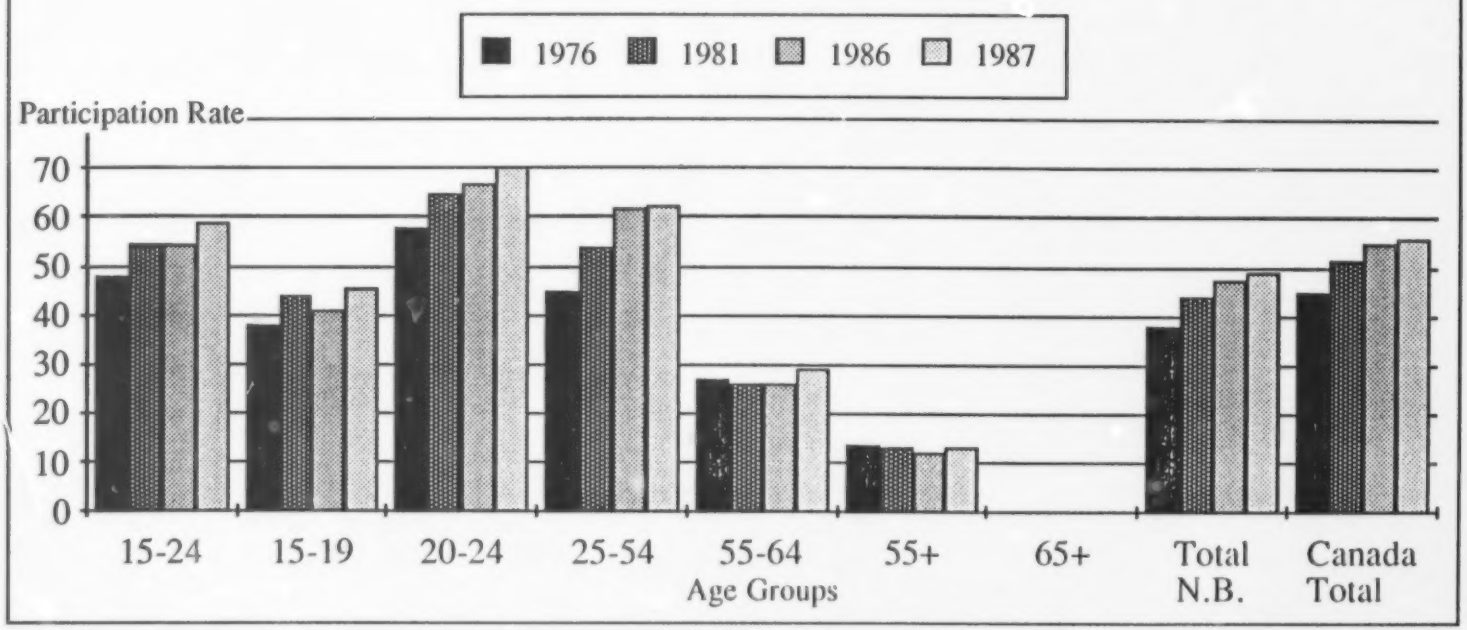
Source: see Table 17

Chart 11A
Female Labour Force Participation Rates
By Age Group, Nova Scotia, 1976-1987



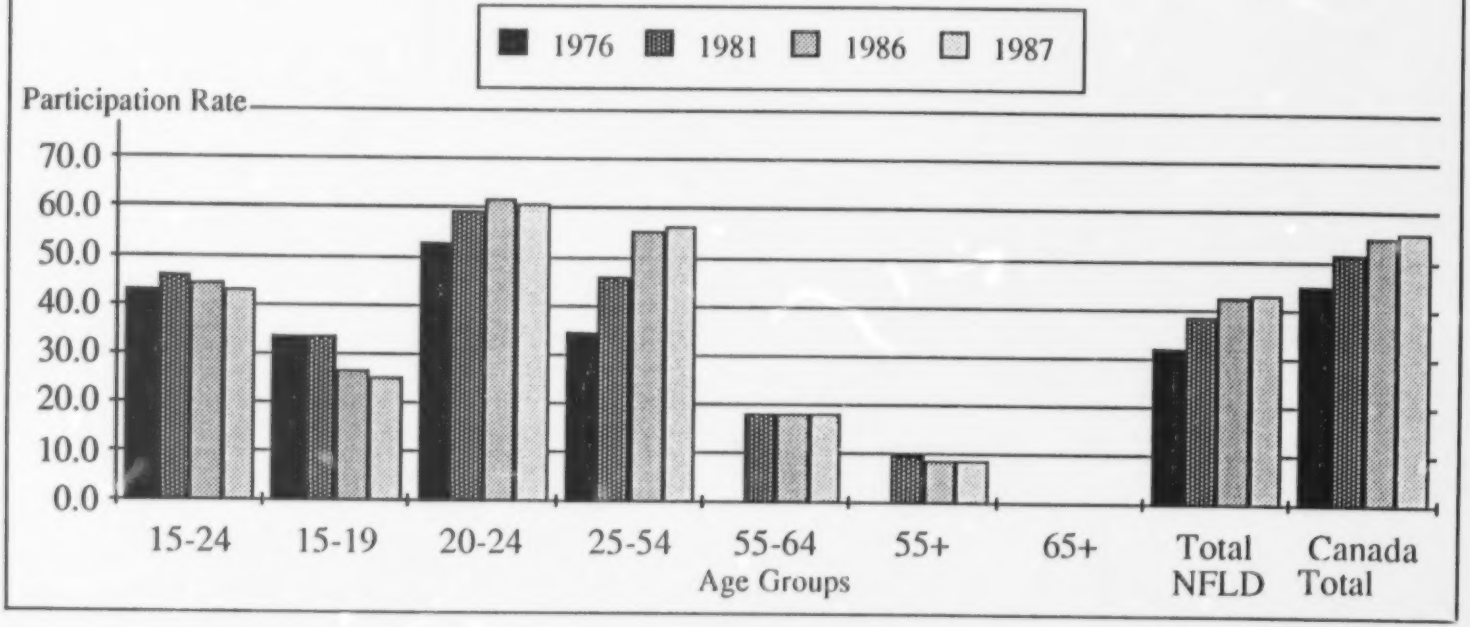
Source: see Table 17

Chart 11B
Female Labour Force Participation Rates
By Age Group, New Brunswick, 1976-1987



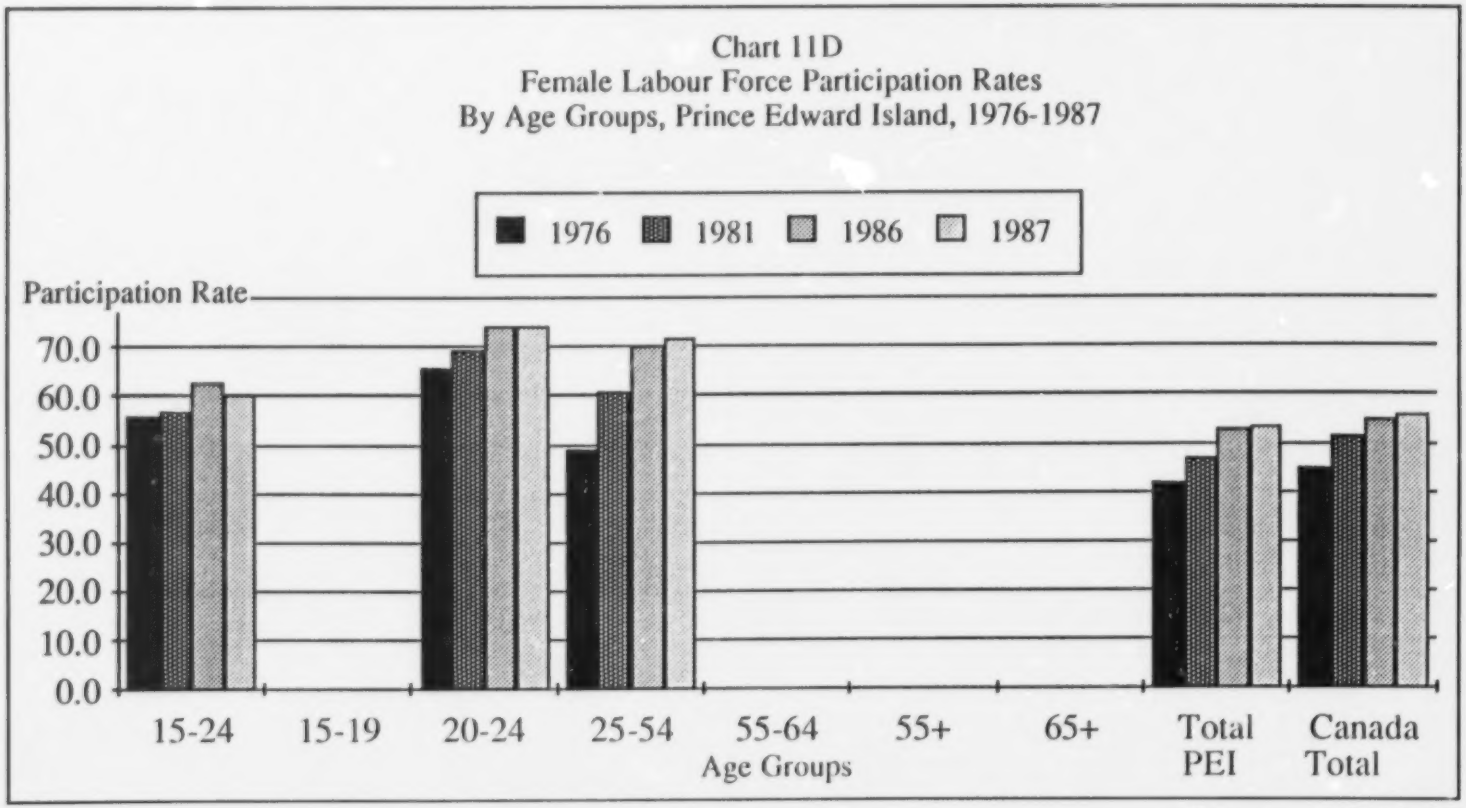
Source: see Table 17

Chart 11C
Female Labour Force Participation Rates
By Age Groups, Newfoundland, 1976-1987



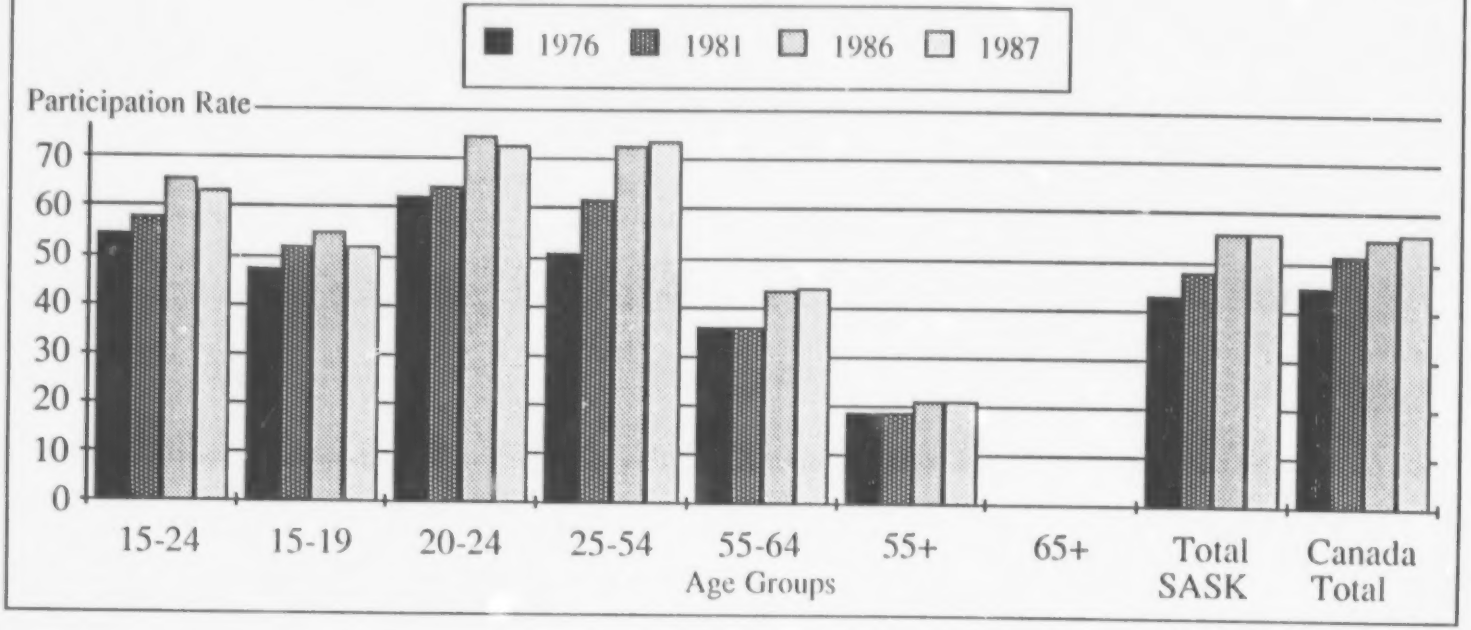
Source: see Table 17

Chart 11D
Female Labour Force Participation Rates
By Age Groups, Prince Edward Island, 1976-1987



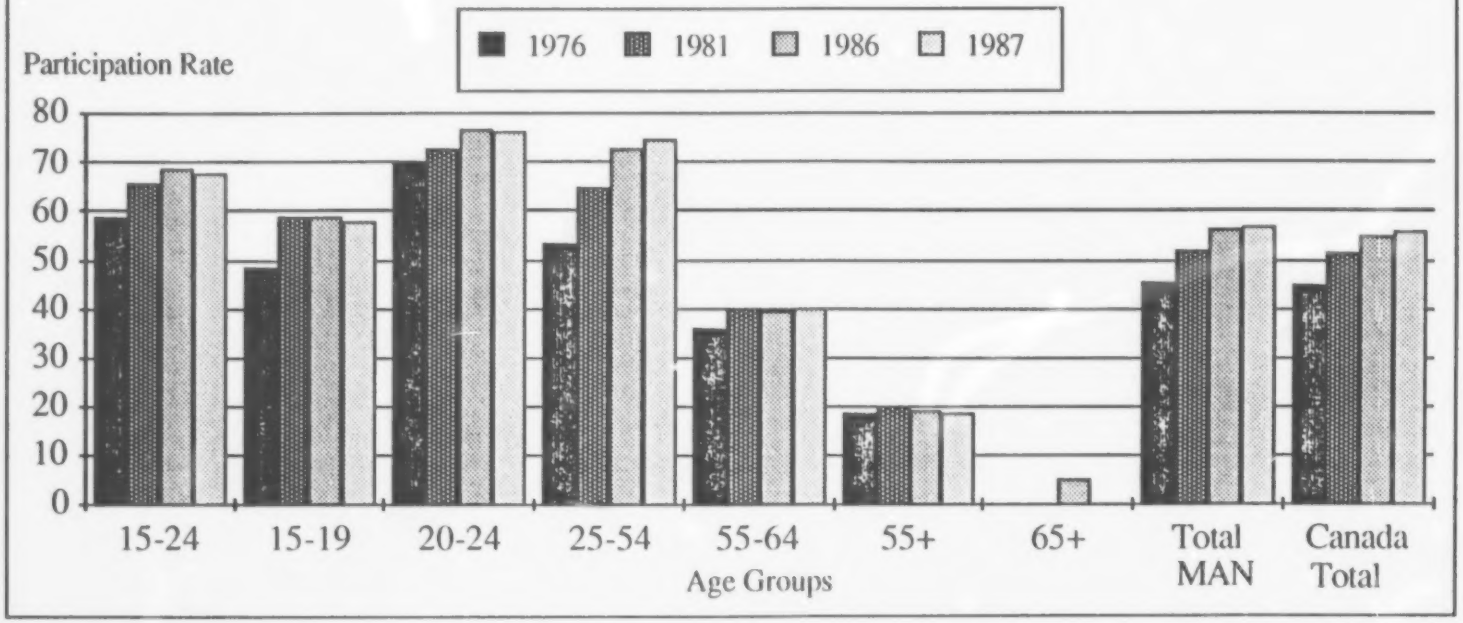
Source: see Table 17

Chart 11E
Female Labour Force Participation Rates
By Age Groups, Saskatchewan, 1976-1987



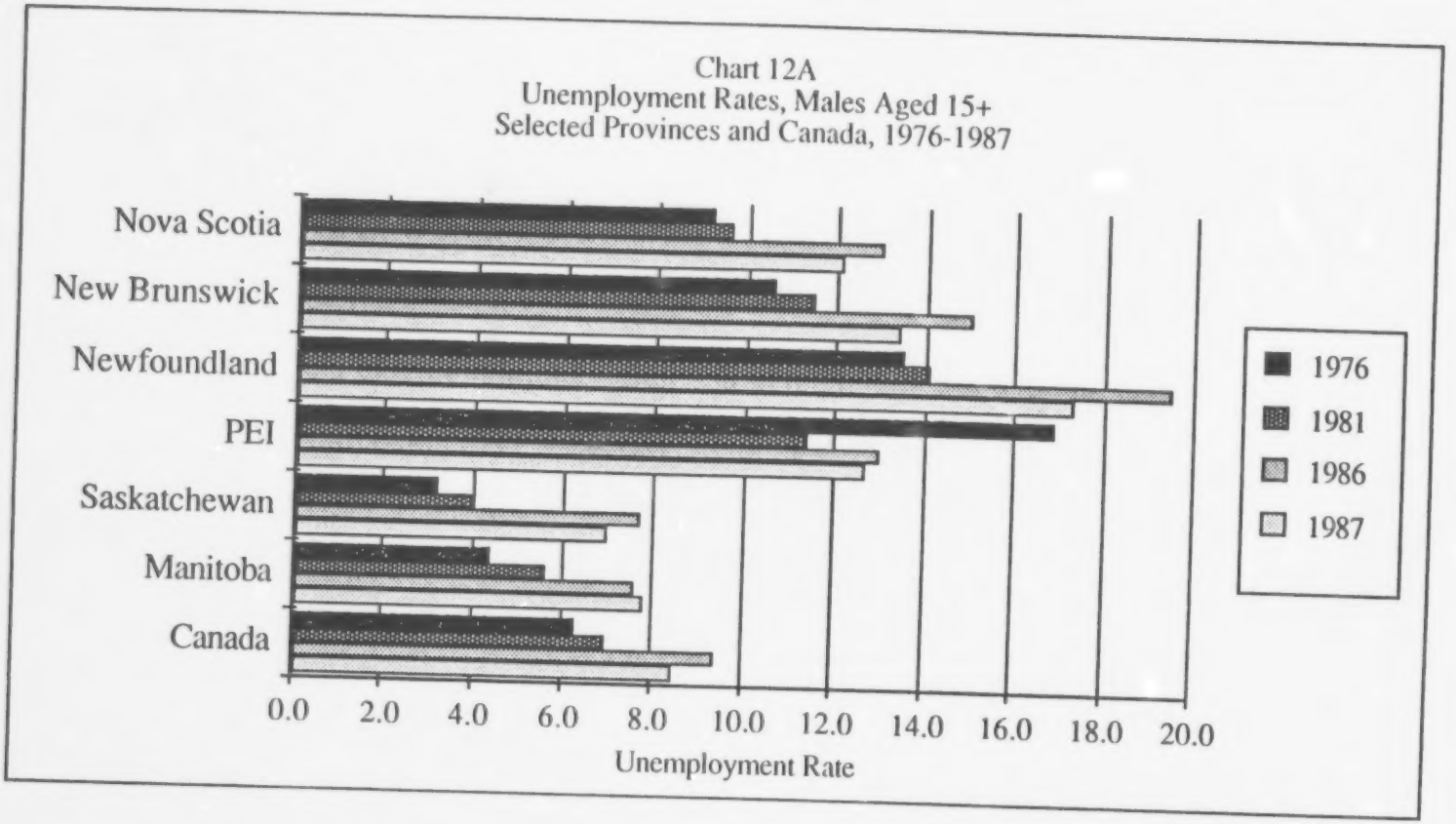
Source: see Table 17

Chart 11F
Female Labour Force Participation Rates
By Age Group, Manitoba, 1976-1987



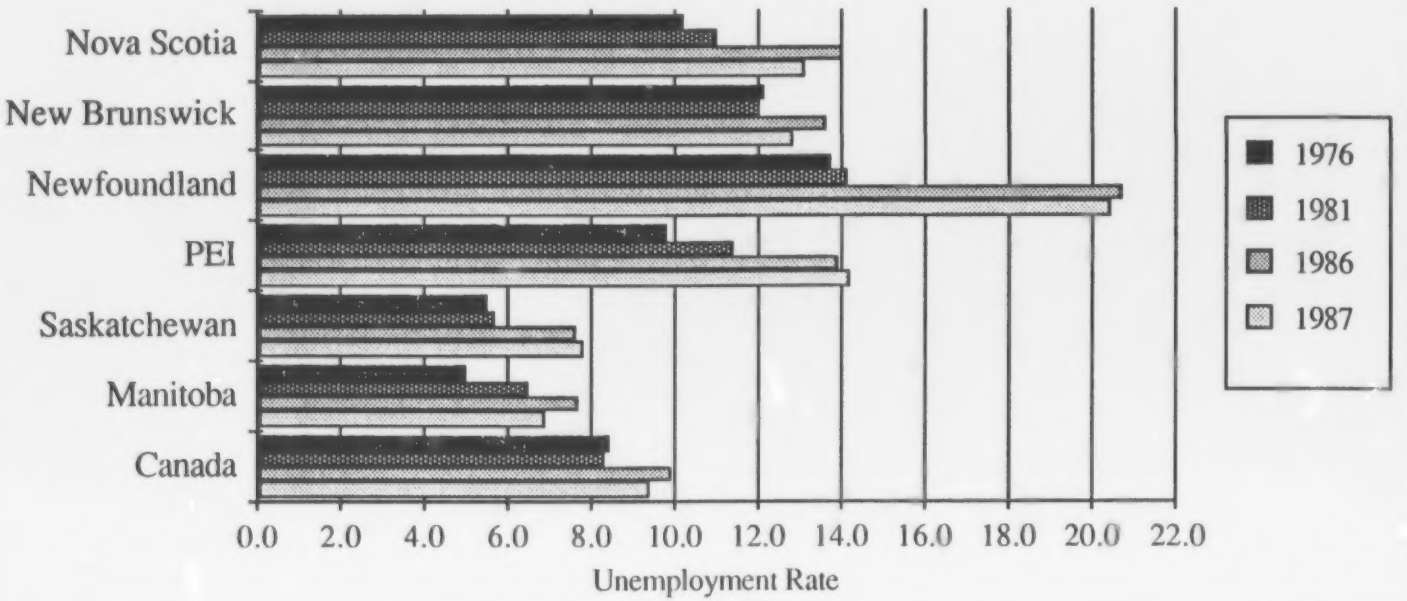
Source: see Table 17

Chart 12A
Unemployment Rates, Males Aged 15+
Selected Provinces and Canada, 1976-1987



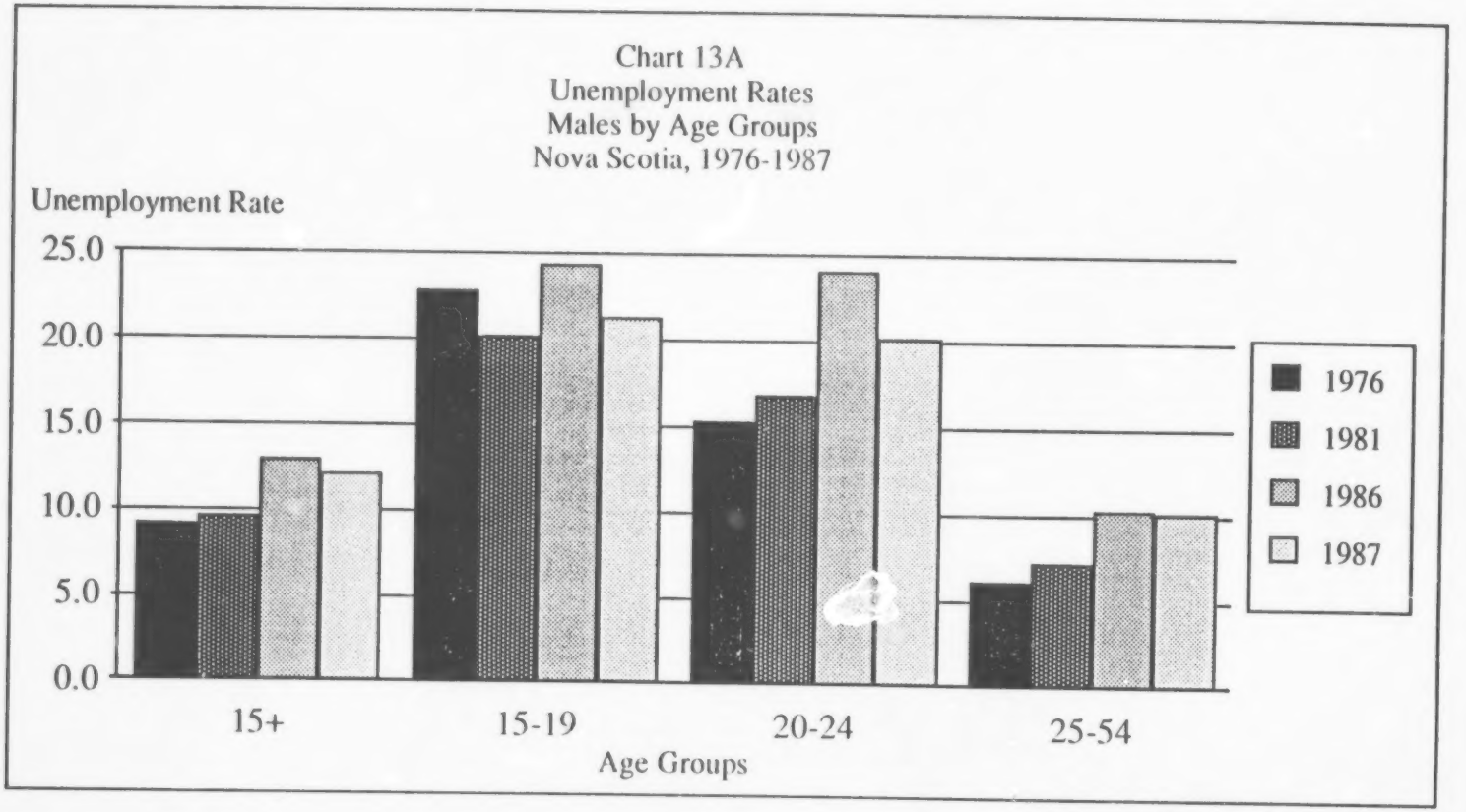
Source: see Table 18

Chart 12B
Unemployment Rates, Females Aged 15+
Selected Provinces and Canada, 1976-1987



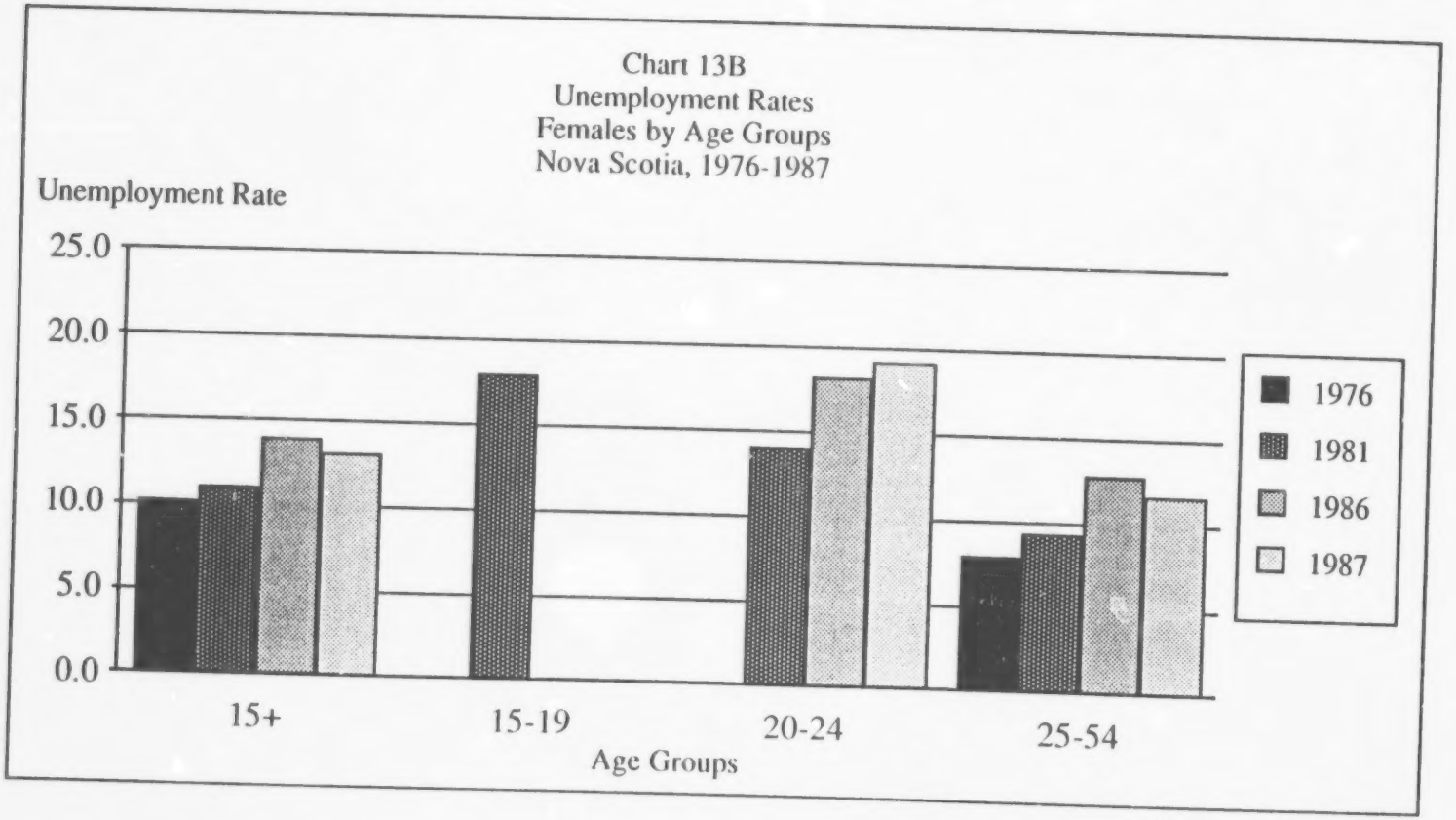
Source: see Table 18

Chart 13A
Unemployment Rates
Males by Age Groups
Nova Scotia, 1976-1987



Source: see Table 18

Chart 13B
Unemployment Rates
Females by Age Groups
Nova Scotia, 1976-1987



Source: see Table 18

III. HEALTH STATUS

A crude, overall indicator of "Health Status" which is often used is life expectancy at birth. As was noted by the Institute for Health Care Facilities of the Future,[1] the gap between male and female life expectancy, (which favours the latter), has diminished. Because of the changing illness patterns among women, e.g., increasing morbidity and mortality due to heart disease and lung cancer, it is expected that the differences in longevity between men and women will continue to shrink. A possible result of this phenomenon may be that there will be fewer women living to older ages and, hence, there could be fewer older senior women "living alone".

The latest life expectancy information -- unfortunately only 1980 - 82 data exist for the provinces -- indicates that Nova Scotia has the lowest life expectancies of the provinces considered in this report, and they are also below the national averages, see Chart 14A and Table 19A. This holds for both males and females and has generally been the case since 1966, see Chart 14B-C.

As with the rest of the country, the gap in life expectancy between males and females has diminished (8.3 years in 1976 to 7.4 years in 1980 - 82). Biological and environmental factors, including lifestyles, working conditions and societally-determined sex roles, have been key determinants in the difference in life expectancy between men and women. It is difficult to attribute improvements in life expectancies to specific factors, however, medical care has not been found to be a key determinant. With changes in the roles of women, their lifestyles and behaviour, differences between the life expectancies of men and women can be expected to continue to converge. If life expectancies continue to converge, the number and proportion of seniors in the provincial population may not increase to the same degree during the next couple of decades as once may have been envisaged.

Internationally, countries with the highest life expectancy at birth for males include: Japan (74.8), Switzerland (73.8), Greece (73.6), Sweden (73.5) and Iceland (73.4). Recording the lowest life expectancy at birth for males are: Turkey (58.3), Austria (69.5), Luxembourg (68.9), and Portugal (69.1). Canada's life expectancy (72.0) is similar to Denmark (71.8), Australia (72.2) and Spain (71.8). At present, women's life expectancy at birth is greater then men's. For females, the lowest life expectancy at birth in the 1980's has been recorded in Ireland (75.8), Luxembourg (76.0) and Turkey (62.8). Countries with the highest rates include Iceland (80.6), Japan (80.7) and Switzerland (80.8). Canada (79.0) has a rate similar to Australia (79.0) and France (79.1), see Table 19B.

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[1] Institute for Health Care Facilities of the Future (1988), Future Health: A View of the Horizon, Ottawa (p. 9).

The life expectancy, or remaining years of life, of people at age 65, 75 and 85 are shown in Chart 14D and Table 19C. In 1980/82, Nova Scotia men at these ages, and women at age 65 and 85, had the lowest life expectancy of all of the provinces considered in this report. For women at age 75, Newfoundlers had the fewest remaining years of life. Historically, there have been other occasions when Newfoundland seniors have had fewer remaining years than their Nova Scotian counterparts.

An important question is: what is the quality of the life remaining? While we do not have disability-free life expectancy data by province, we do know that there are significant differences by income level and sex in Canada. If the data were available, one would expect to see major differences among the provinces being examined for this study.

From 1921-1986, there has been a significant reduction in the deaths rates for both men and women, see Table 20. Between 1976 and 1986, age standardized death rates for males and females have fallen slightly, see Table 21A. In 1986, male death rates per 1,000 population were highest in Prince Edward Island and Nova Scotia, followed by New Brunswick, Newfoundland, Manitoba and Saskatchewan; the first three provinces have higher male death rates than the national average. In 1986, female death rates were highest in Newfoundland, followed by Nova Scotia, Manitoba, New Brunswick, Prince Edward Island and Saskatchewan; the first two provinces had female death rates above the national average, see Chart 15.

One of the important reasons for our success in increasing life expectancies relates to our achievements in defeating infectious diseases. The conditions from which we become ill and die have changed considerably during the past few decades.

From an international perspective, Table 21B provides age-adjusted death rates (based on the European age structure) for 23 OECD countries for the following causes of death: infectious and parasitic diseases, malignant neoplasms, diseases of the circulatory system, diseases of the respiratory system, diseases of the digestive system, injury and poisoning, and all causes. As reported by the OECD (1987, p. 44), the four leading causes of death in Europe are diseases of the circulatory system, cancer, external causes (e.g., injuries and poisoning), and diseases of the respiratory system. Diseases of the circulatory system and malignant neoplasms accounted for an average of 46% and 23% respectively of all causes of death. Internationally, Canada falls below the mean (and near the bottom of the standard deviation) for "all causes of death". Similar rates were recorded by Sweden, Norway, Iceland, and The Netherlands. Countries recording higher total death rates for "all causes" included Luxembourg, Portugal, New Zealand, the UK, Austria, and Ireland. The lowest rate was reported in Japan.

As noted in the OECD report, (1987, p. 45), these data should not be interpreted too closely for the following reasons: the data reflects different years (1980-1984) for different countries; the data on specific causes are subject to yearly fluctuations (e.g., epidemics such as influenza); the categories are highly aggregated; deaths are often the result of multiple causes, only one of which is reported; and reporting can be biased by cultural factors. Nevertheless, the information presented in Table 21B indicates the proportional differences among countries. It is important to note that most of these caveats also apply to the interpretation of interprovincial differences.

At this time in Canada, the major leading causes of death are heart disease, cancer, respiratory diseases, accidents and cerebrovascular diseases, the causes of which are related to a combination of lifestyle, environmental and genetic factors. In Nova Scotia, the five leading causes of death for males (in descending order of significance) in 1986 were: diseases of the heart, cancer, respiratory diseases, accidents, and cerebrovascular disease. For females, the leading killers were the same as for males, but in a different order: diseases of the heart, cancer, respiratory diseases, cerebrovascular disease and accidents, see Table 22.

Of the provinces considered, Prince Edward Island and New Brunswick ranked ahead of Nova Scotia with respect to age-standardized death rates due to heart disease for males; only Newfoundland ranked ahead of Nova Scotia for death rates due to heart disease for females. Prince Edward Island had the highest rate of cancer among females while Nova Scotia had the highest rate of cancer among males. Only Newfoundland, Saskatchewan and Manitoba had rates lower than the national average for males dying of cancer. Saskatchewan and Manitoba had male and female rates below the national averages for heart disease. For female cancer death rates, PEI, Nova Scotia and Manitoba were above the national average.

A particularly useful mortality indicator, especially in the consideration of premature deaths, is the potential years of life lost (PYLL) measure. The amount of premature death due to all causes is significantly higher for males than females, see Chart 16A. For males, PYLL due to all causes per 100,000 population for the period 1982 - 1986 was highest in New Brunswick, followed by Nova Scotia. Newfoundland had the lowest rate of PYLL, see Chart 16A and Table 23A. For females, on the other hand, the PYLL rate for all causes was highest in Manitoba followed by Saskatchewan and then Nova Scotia. PYLL was lowest in Prince Edward Island, see Chart 16B and Table 23B.

In Nova Scotia, the five leading causes of premature death for males are: coronary heart disease, car accidents, suicide, lung cancer and perinatal mortality, see Chart 16A. These five causes accounted for almost half of all the years lost between 1982 and 1986, see Table 23A and Chart 16B. For females, the five major causes of premature death were: coronary heart

disease, congenital abnormalities, breast cancer, car accidents, and perinatal mortality, see Table 23B. Slightly more than 40% of female years lost in Nova Scotia were accounted for by these causes of death. Many of the factors behind these causes of premature death are related to lifestyles, the environment, and the genetic make-up of individuals, see Table 24. As is discussed in another study in this series [2], between 1979 and 1983, Nova Scotia and New Brunswick had 16% and 12% respectively, more premature deaths than Saskatchewan and well above the national average, see Table 25 and Chart 17.

Another widely used indicator of "health status" is infant mortality rates. In each of the provinces examined in this study, infant death rates have been falling significantly since 1921, see Table 26. In 1986, the highest infant mortality rates were found (in descending order) in: Manitoba with 9.2 deaths per 1,000 live births, Saskatchewan (9.0), Nova Scotia (8.4), New Brunswick (8.3), Newfoundland (8.0), and Prince Edward Island (6.7). All provinces, but PEI, were above the Canadian average of 7.9 deaths per 1,000 live births. Rates by age are provided in Table 27A: perinatal deaths represent the greatest percentage of infant deaths.

In an international comparisons of OECD countries, Canada falls in the mid range of infant mortality rates for the 1980's, see Table 27B. For males, the rates range from a low of 6.5 deaths per 1,000 live births in Finland to 22.1 in Portugal. Canada reported a male infant death rate of 10.4, similar to Australia (10.5) and Germany (10.6). For females, the infant death rates ranged from 5.6 in Japan to 17.3 in Portugal, with Canada reporting a rate of 7.8, similar to the Netherlands (7.5) and France (8.2). Effective medical intervention, prevention and education programs, particularly targeting high risk groups, and new technologies for pregnant women and newborns (e.g. ultra sound, amniosynthesis, and neonatal intensive care) have reduced infant mortality rates. The OECD (1986, p. 35) reports that further appreciable reductions are unlikely.

The previous indicators of "Health Status" are based primarily on mortality data. Population-based health status indicators present a different perspective on the health of the population. About 13% of the Canadian population are disabled. This proportion ranges from a low of 12% in Prince Edward Island to almost 16% in Saskatchewan; Nova Scotia had about 15% of its population who are disabled, see Chart 18. Except for New Brunswick, (where they are the same), the proportion of disabled females was higher than that for males. Even accounting for differences in age/sex structures of population, by using age standardized rates, Saskatchewan still has the highest rate and PEI the lowest rate of disability in Canada; the Nova Scotia reported rate of disability was the second highest in Canada. The differences between provinces can

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[2] Angus, D.E., P. Manga and K. Tregunna (1989), "Inter-provincial Comparison of Health Expenditures", for the Nova Scotia Royal Commission on Health Care.

only be partially explained by differences in age structure and by the proportion of the population living in rural areas.

When interpreting the estimates of the prevalance of disability as determined in the "Report of the Canadian Health and Disability Survey 1983-1984,", it should be noted that the estimates can vary widely due to the subjective nature of the respondent's self-reported disability, the comprehensiveness of the screening questions that were asked, and the method of their administration. However, even with these caveats, population-based surveys are important in that they have the advantage of obtaining health-related data, whether or not the person is seeking medical care.

Without exception, as the population ages, the rates of disability climb significantly, see Table 28. It is important to note that the high percentage of disability reported by those 65+ reflect the rate of disability in the non-institutionalized elderly. This is significant, given the aging population.

A greater percentage of people living in rural areas reported a disability than did people living in urban areas, see Table 29. In Atlantic Canada, 14.6% versus 12.9% of the rural and urban populations respectively reported a disability. This may reflect the greater proportion of elderly living in rural areas, though the urban/rural difference is reflected in all age groups. This urban/rural dichotomy is important in terms of delivering services to the disabled.

In Canada, 76% of the seeing disabled, 28% of the hearing disabled, and 29% of the mobility disabled used corrective aids. Similar proportions for Nova Scotia were 77%, 22% and 21% respectively, see Table 31. Manitoba had the highest rates of use of all types of corrective devices, while Newfoundland and Nova Scotia had the lowest rate of use. It is important to note that these figures do not include those people who, by using a corrective device, have their functional limitation corrected. In the report on the survey, (p.58), it was noted that the reason most frequently given for not having mobility aids was cost; this was cited by 36% of those needing aids.

With respect to individuals' perceptions of their health status, fewer Nova Scotians than residents of the other five provinces rated their health as "excellent", see Table 30. While almost two-thirds of people in Newfoundland and Prince Edward Island thought that their health status was either "very good" or "excellent", slightly more than half of the residents of the other provinces had this opinion.

As was noted earlier, significant strides have been made in the battle against various infectious diseases. Of course, AIDS represents a major potential threat to certain segments of the population. Since 1979, the frequency of reported cases of AIDS in Canada has climbed dramatically, see Chart 19. While the total number and proportion of cases and deaths in the provinces

considered in this report are small compared to other regions in the country, the cumulative death rate per million population is significantly higher in Nova Scotia than in the other five provinces, see Table 33. The projected number of AIDS cases is expected to increase noticeably during the next few years, see Chart 20 and Table 34.

Overall, the rates of selected notifiable diseases have been declining particularly with respect to some sexually transmitted diseases. Yet, rates of gonorrhea and salmonella poisoning are still relatively high in some provinces examined in this report, see Table 35.

In an effort to add more information to our understanding of "Health Status", it is useful to consider institutional morbidity indicators. It should be remembered that, in considering these measures, factors other than health status also are involved, e.g., availability of facilities and services, decisions whether or not to seek treatment, and physicians' decision vis-à-vis length of hospitalization, etc.

For Nova Scotia, in 1984/85, the major leading causes of hospitalization, (as determined from separation rates), were, for males: diseases of the circulatory system, respiratory system, digestive system, injuries and poisoning, and cancer, see Table 36A. For females, they were: complications of pregnancy and childbirth, diseases of the circulatory system, digestive system, respiratory system, and cancer. By average length of stay, the major leading causes are, for males: perinatal problems, cancer, mental disorders, disorders, diseases of the circulatory system, and endocrine, nutritional and metabolic diseases. For females, they are: mental disorders, cancer, diseases of the circulatory system, endocrine, nutritional and metabolic diseases, and diseases of the skin, see Table 37A.

At the end of the 1970s the major causes of hospitalization were, for males: diseases of the respiratory system, circulatory system, digestive system, injuries and poisoning, and cancer, see table 36B. For females, they were: complications of pregnancy and childbirth, diseases of the respiratory system, digestive system, genitourinary system and circulatory system. By average length of stay, the major leading causes were, for males: cancer, perinatal problems, diseases of the circulatory system, endocrine, nutritional and metabolic diseases, and diseases of the skin. For females, they were: perinatal problems, cancer, diseases of the circulatory system, endocrine, nutritional and metabolic diseases, and mental disorders, see Table 37B.

For Canada as a whole, separation rates from psychiatric and general hospitals for mental disorders have been declining since the early 1970s, see Table 38. Generally, the situation is the same for the provinces considered in this report. The highest age-standardized rates for males in 1982/83 were in Prince Edward Island, followed by Nova Scotia, Newfoundland, Saskatchewan,

Manitoba and New Brunswick. For females, the highest rates were in PEI, followed by Saskatchewan, Newfoundland, Nova Scotia, New Brunswick, and Manitoba.

One of the major impacts of mental illness is represented by suicides. Suicide rates for men are about four times as high as those for women, see Table 39 and Chart 21. For men, the highest rates were found in New Brunswick and Saskatchewan, followed by Manitoba, Nova Scotia, Prince Edward Island, and Newfoundland, with New Brunswick and Saskatchewan being above the national average. Among women, the rate of suicide was highest in Prince Edward Island (also above the national average), followed by Saskatchewan and Manitoba, New Brunswick, Nova Scotia, and Newfoundland. Another measure of mental health is related to feelings of happiness. While data are unavailable by provinces, information at the regional levels shows that the Atlantic and Prairie regions had the lowest percentage of people who reported in the mid 1980s that they were very happy, see Table 40. It is possible that an inverse relationship exists between the perceived level of happiness of the population and the rate of suicides.

Given the crude nature of the indicators related to mental illness, happiness and suicides, these measures should be interpreted with caution. Better indicators are needed which would account for such variables as people's working and living conditions, income and resource situations, family and social structures, as well as conditions leading to treatment institutions, and to suicide attempts. Regrettably, these data are not collected with any regularity or consistency. More work is needed in the area of mental health. Nationally, a Health and Welfare Canada report using the "Achieving Health For All" health promotion framework to explore issues of mental health was recently released, entitled "Mental Health for Canadians: Striking A Balance."

As can be noticed, there is great overlap in the conditions which result in both death and institutional morbidity. An important determinant of health status related to both causes of death and morbidity are lifestyle behaviours of the population. Smoking, alcohol consumption, nutrition, stress levels, and physical activity are all significantly associated with the major health problems of heart disease, cancer, accidents, respiratory diseases, and mental disorders

"Nova Scotia's health minister is not pleased with the health of the province's citizens, but he is not blaming doctors for the situation. 'We're responsible for the condition of our bodies, and the fact is many Nova Scotians have made decisions about lifestyles that have led to them being unwell'".[3] The health minister also seemed to have (correctly) observed that

[3] "Patients heal themselves, NS health minister orders" CMAJ, Vol.140, January 1, 1989.

perhaps it is not the total fault of Nova Scotians, when he indicated that the province was going to implement a vigorous health promotion program to arm the province's residents with information to deal with dangerous lifestyle habits.

The 1985 Canada health promotion survey indicated that people between the ages of 25 - 64 in Atlantic Canada seemed to be at greater risk of cardiovascular disease than elsewhere: over 10% of them reported having high blood pressure, more than 37% were regular smokers, over 11% were obese, and just over one-quarter were sedentary, see Table 41. All of these reported proportions were either the highest or among the highest in the country. While the individual provincial data were not available, it is likely that, based on Nova Scotia's high rate of heart disease deaths, a high proportion of the population is "at risk".

The use of tobacco is associated with heart disease, various forms of cancer, and certain respiratory diseases. The proportions of regular smokers are higher in Atlantic Canada than in most other regions in the country. For males, the highest percentages of smokers are found in Newfoundland, followed by New Brunswick, Nova Scotia and Prince Edward Island. All were higher than in Manitoba and Saskatchewan. The important story, especially for Nova Scotia, is in the female smoking patterns. This province had the highest percentage of female smokers, followed by New Brunswick, Newfoundland, Manitoba, Saskatchewan, and Prince Edward Island, see Table 42 and Chart 22.

In the very near future, the province's health care system may have to deal with senior females with such afflictions as heart disease, lung cancer, and certain respiratory diseases. It also in quite possible that, as a result of these trends, there may be fewer than anticipated older females in Nova Scotia, and hence, less demand for a variety of health and social support services such as nursing home beds, pensions. etc. Of course, for the younger female population, smoking represents not only a risk to their own health, but also to the unborn fetus and young children.

Another lifestyle behaviour, which if done in excess can have harmful effects, is alcohol consumption. As we are coming to determine with more certainty, excessive alcohol use is associated with a number of different health and social problems, i.e., death and morbidity associated with car accidents, alcoholism, cirrhosis of the liver, various cancers, suicides, occupational hazards, etc. In Atlantic Canada, the proportion of persons who reported frequent drinking, i.e. 14 or more drinks per week, was lower than in the other regions across the country, see Table 43. The percentage of people who indicated that they drove after drinking alcoholic beverages was also amongst the lowest in the country. These data should be interpreted with caution, however. Since excess alcohol use and driving and drinking are "socially

unacceptable" behaviours, there could be a tendency for self-reported responses to understate real behaviours. Certainly, when one looks at other data, e.g., mortality and morbidity usually associated with excess alcohol consumption, there very well could be under-reporting on the self-reported data.

The average number of alcoholic drinks consumed per week by drinkers over the age of 15 ranges from 5.5 in Manitoba to just under 3.5 in Prince Edward Island; Nova Scotians reported drinking 5.05 drinks per week. Women in Nova Scotia consumed more, on average, than in the other provinces; in fact, it was higher than the national average for females, see Table 44 and Chart 23.

For Nova Scotia, then, there are two trends of concern. First is the high percentage of female smokers, and next is the higher-than-average number of alcoholic beverages consumed by women. The combined effects of both tobacco and excess alcohol use increase the health risks considerably for a major segment of the province's population. There could be noticeable increases in the incidence and prevalence of heart disease and certain cancers for Nova Scotia women in the coming years.

A positive aspect, however, is that based on behaviour and beliefs regarding high blood pressure, it would appear that many Nova Scotians are aware that heart disease is a problem in their province. For instance, in 1985, a greater percentage of people in Nova Scotia than in the other provinces reported having had their blood pressure checked during the 6 months prior to the national health promotion survey, see Table 45. Furthermore, fewer people in Nova Scotia and Manitoba than elsewhere believed that the only time one needed to have blood pressure checked was when they thought they had a problem, see Table 46. It also is clear that a much higher proportion of Nova Scotians than residents of other provinces felt that they needed more information about hypertension, see Table 46.

One aspect of lifestyles considered to be positive is physical activity. Some of the perceived benefits are related to weight reduction, control of excess stress and tension, and reduction in the risk of ischaemic heart disease. Like many other Canadians more than half of Nova Scotians believed that more exercise would improve health, see Table 47. More than two-thirds of people in Nova Scotia reported having exercised either occasionally or regularly, see Table 48. In terms of exercising regularly, men in New Brunswick, Nova Scotia, Prince Edward Island, and Saskatchewan were well above the national average, while for most women in these provinces, (except for Saskatchewan), they were below the national average.

As we are beginning to confirm, individuals' nutritional behaviour can influence health status. While provincial data are unavailable, national consumption patterns regarding selected foods at breakfast (tea/coffee,

breads/cereals, fruits/juices, milk/dairy products, eggs/other meats) varied widely by age group, see Table 49. Despite the situation that few people felt that improving eating habits is the most important action taken to improve health during 1985, two-thirds believed that changing eating habits could improve health, see Table 50. Furthermore, more than 6 in 10 Canadians over age 15 are aware that there are foods which one should limit or avoid for the sake of health, see Table 51. In descending order of the foods which were reported as needing to be avoided were those high in fat, cholesterol, sugar and salt.

One aspect of health which does not get considered as frequently as it might relates to occupational health and safety. Reflecting the industrial structure in Canada, the majority of time-loss injuries occur in the manufacturing sector, followed by community, business and personal service industries, and the public administration and defence sector. This trend was evident in each of the provinces in this study, see Table 52. The majority of time-loss injuries happened among those workers between 20 - 39 years of age, see Table 53. Most time-loss injuries were reported for males, see Table 54, with Nova Scotia having a consistently higher proportion than the other four provinces. Half of the injuries in Nova Scotia were of the "sprains and strains" variety, followed by "contusions, crushings, and bruises", and "cuts, lacerations and punctures", see Table 55. More than one-third of the time-loss work injuries affected the trunk of the body, followed by about one-quarter to the upper extremities, and slightly more than 20% to the lower extremities, see Table 56.

Related to the place of work are health promotion activities undertaken at these locations. If health promotion is accepted as a viable health program, it would seem that the workplace might be a good location at which to implement such activities. In fact, more than 70% of wage earners over the age of 18 in Nova Scotia believe that the place of work is an appropriate place to promote good health habits, see Table 57. Almost half of these Nova Scotians were aware of workplace programs designed to improve health, physical fitness, or good nutrition. Both these proportions exceeded the national averages. About 4 in 10 wage-earning Nova Scotians reported receiving or seeing information (posters, bulletin boards, pamphlets, etc.) about health topics at work. More than 8 in 10 of them found the information helpful.

The health risk behaviours of children will have some effect on the demand for future health care resources. In 1984 - 85, almost 13% of grade 7 students in Nova Scotia were smoking cigarettes, compared to the national average of 11% of these students. By grade 10 this proportion doubled to 26%, closer to the national average, with a significant portion (10%) smoking more than 10 cigarettes a day, see Table 58. The situation was similar in other parts of the country.

Another significant risk factor for children is the trend in alcohol consumption. About 20% of grade 7 students in Nova Scotia drank alcoholic beverages either once a month, 2 - 3 times a month to once a week, or at least 2 - 3 times a week, see Table 59. The Canada average was 25%. By grade 10, drinking among school-age children increased dramatically. In Nova Scotia in 1984 - 85, one-quarter drank once a month, another 27% drank 2 - 3 times a month, and almost 5% were drinking at least 2 - 3 times a week. While the situation is more severe in other Canadian locations, it does seem serious enough in Nova Scotia to warrant attention.

Drug use is another important parameter to consider: almost 2 in 10 grade 10 students in Nova Scotia were found to be users of cannibus, see Table 60.

Disability rates for children under age 15 in Canada and the provinces were about 6%, with higher percentages of boys than girls being disabled, see Table 61. This percentage is greater than the percentage reported for the aged groups 15-24 and 25-34, see Table 28. These percentages represent only those situations where an aid does not correct the functional disability. Saskatchewan reported the highest rate at 6.5%, followed by New Brunswick, Nova Scotia and Manitoba, with Newfoundland having the lowest rate at 5.0%. Due to the sample size, figures were not available for PEI. When age standardized rates are considered, there is a change in the ranking, with New Brunswick becoming the highest in Canada at 6.6%, followed in fourth place by Saskatchewan (6.0%) and then Nova Scotia (5.7%). As noted in the report of the Canadian Health and Disability Survey (p. 88), the main condition or health problem causing the limitations were diseases of the respiratory system (22.7%), diseases of the nervous system and sense organs (21.8%), and musculoskeletal conditions (15.5%).

With respect to physical and leisure time activities Chart 24 and Table 62 show that Grade 7 Nova Scotia students were higher than the national norm in the categories of underweight and overweight. This was determined by asking Grades 7 and 10 students to estimate their height and their weight. From this information, each respondent was classified according to the Wetzel Grid for Evaluating Body Physique. The percentage of Nova Scotia children who were overweight was significantly higher than the Canada average

As found in the Canada Health Attitudes & Behaviours Survey of 9, 12 and 15 year olds, young Nova Scotians were similar to other Canadian youth in their physical activity levels, with the exception of the proportion of grade 7s which was slightly under the Canadian norm in the "very high" category, see Chart 25. A Physical Activity score was calculated for each respondent based on the number of days per month he/she participated in any selected "heavy" exercise (requiring large muscle group activity for long periods, e.g., bicycling at least one-half hour a day). A Very Low activity level means six or fewer of

the activities were typically done each month. Low means 7 to 20 per month, Moderate 21 to 34, High 35 to 54, and Very High 55 or more, see Table 63.

Regarding nutrition, findings of the 1984 - 85 survey mentioned above, indicate that the Nova Scotia and Canadian averages were very close in terms of the proportion of 9, 12 and 15 year olds meeting the daily and variety criteria for all four food groups, see Table 64 and Chart 26.

It should be noted, that in this survey, differences between the provincial and optional results are usually significant if they are five percentage points or more in size. Two criteria had to be met for a respondent to be considered to be eating appropriately. To meet the "daily" criterion, the respondent had to eat from each of the four food groups the equivalent of every day. To meet the "variety" criterion, the respondent had to eat as follows on a weekly basis:

> Milk and Milk products: at least two types of foods;
>
> Breads and Cereals: at least two types of foods with one being either whole grain cereals or whole grain bread;
>
> Meat, Fish, Poultry and Alternates: at least three types of food: and
>
> Fruits and Vegetables: at least two types of food from each of fruits and vegetables.

In the Chart 27 it can be seen that young Nova Scotians were above average with respect to the proportions of Grade 4s and 10s in the "high" category of consuming foods with a high sugar content, particularly the proportion of Grade 4s. The province was also above average in the proportions of Grades 4s, 7s and 10s in the "high" category of high salt content foods, see Table 65.

A high score for sugar consumption was based on 25 or more weekly sources of high sugar content foods. A high score for salt consumption was based on 25 or more weekly sources of high salt content foods, including and equivalent weighting for the response to "I add salt to my food". A high score for fat consumption was based on 25 or more weekly sources of high fat content foods, including an equivalent weighting for the response to "I eat fried foods most days". A high score for fibre consumption was based on more than two sources eaten a day.

With respect to female health prevention, slightly more than 53% of women aged 15 and over in Nova Scotia reported having a PAP smear test for cancer done within the past year prior to a 1985 national health promotion survey, compared to the national average of just over 56%, see Table 66. The percentage of Nova Scotia females who never had a PAP smear was 14%, about the national average. Manitoba, Saskatchewan and PEI women all

reported above the national average for having had a PAP smear in the last year.

Knowledge of how to perform breast self-examination (BSE) was reported by fewer women in Atlantic Canada than elsewhere. About two-thirds of Nova Scotia females over the age of 15 indicated that they had this knowledge. Of those women in Nova Scotia who had been shown how to perform BSE, more than two-thirds of them examined their own breasts either once a month or once in 2 - 3 months, see Table 67.

The percentages of women who had their breasts examined by a health professional (doctor or nurse) were lower in the Atlantic provinces than in Saskatchewan or the Canadian average. In Nova Scotia, slightly more than half of women over 15 years of age reported having had their breasts examined by a doctor or nurse during the 12 months prior to the 1985 health promotion survey. Manitoba women reported above the national average in all measures related to preventive breast self examination.

Other indicators of safe lifestyle practices are related to seatbelt use and home safety. Nova Scotia reported the highest frequency of seatbelt use, see Table 68A. Over 83% of Nova Scotians indicated that they always use a seatbelt when riding in a car. This practice extends into the use of safety restraints for children in cars, see Table 68B. More than 95% of people in Nova Scotia insisted that children with them in cars use seatbelts or carseats .

A significant proportion of the Canadian population has either a first aid kit or smoke detector in their houses, see Table 69. Over 61% of Nova Scotians reported having a first aid kit, (below the national average), and over three-quarters indicated that their houses were equipped with a smoke detector. Half the population reported having a fire extinguisher, (equal to the national average). Almost one-third of people in Nova Scotia had all of these, (first aid kits, smoke detectors, and fire extinguishers), in their houses, just less than the national average.

Summary: Health Status

In summary, then, Nova Scotians have the lowest life expectancy at birth of the five provinces examined in this study. This ranking is also generally reflective of life expectancies at age 65, 75 and 85. An important, unanswered question is: what is the quality of remaining life, i.e. are they disability-free years? While life expectancy has been increasing, we are starting to notice that the gap between men and women is converging. Death rates have been falling in Canada and Nova Scotia, but are still relatively high for the latter. The leading causes of death for males in Nova Scotia are heart disease, cancer, respiratory diseases, accidents, and cerebrovascular disease; for females, they

are heart disease, cancers, respiratory diseases, cerebrovascular disease and accidents.

Nova Scotia has the second highest death rate due to heart disease for females, and the highest rate for cancer among men. Not only are overall death rates high in Nova Scotia, but the rates of premature death are also high. Major causes of premature death for men in Nova Scotia are heart disease, car accidents, suicide, lung cancer, and perinatal mortality; for women they are heart disease, congenital abnormalities, breast cancer, car accidents, and perinatal mortality. Furthermore, the principal causes of institutional morbidity are very similar to causes of mortality, a major exception being that a high proportion of mental disorders account for much hospital separations and days of care. The striking trend related to most of these causes is that they have their genesis in lifestyle behaviours and the environment.

Infant death rates, while falling significantly since 1921, are still high in Nova Scotia relative to the other provinces considered in this report and are above the national average. Perinatal deaths represent the greatest proportion of infant deaths. Internationally, Canada falls in the mid range of infant mortality rates.

Although very few population-based health status and disability data exist at the provincial levels, some surveys have shown that disability rates in Nova Scotia are higher than the Canadian average. From a delivery perspective, it is important to note the urban/rural differences .

While we have relatively good control on most infectious diseases, a recent "epidemic" could create problems for the system. The cumulative death rate per million population for AIDS is higher in Nova Scotia than in the other provinces examined in this study.

Quasi-indicators of health status can be found in utilization statistics. Leading causes of hospitalization for Nova Scotia males (based on separations and average lengths of stay) include diseases of the circulatory system, respiratory system, digestive system, mental disorders, injuries and poisoning, cancer, and endocrine, nutritional and metabolic diseases. For females they are complications of pregnancy and childbirth, diseases of the circulatory system, digestive system, respiratory system, cancer, diseases of the skin, and endocrine, nutritional and metabolic diseases.

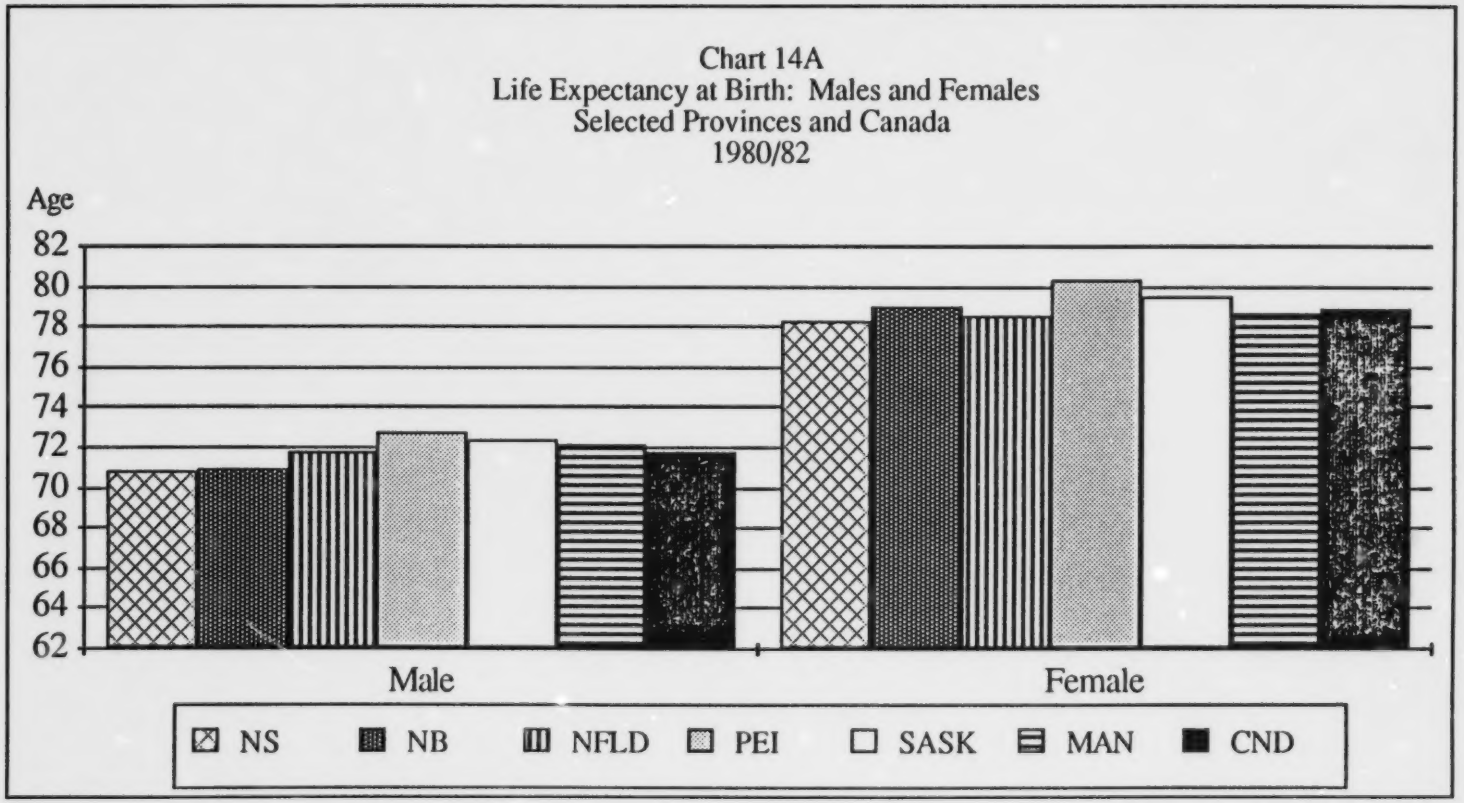
As was noted earlier, lifestyles are associated with the major "health" problems of heart disease, cancer, accidents, mental disorders, and respiratory diseases. It appears that much of the population in Atlantic Canada is at risk of cardiovascular disease: there are high proportions of people with high blood pressure who are smokers, and who are obese and sedentary. Based on the mortality and morbidity data, there is little reason to think that many

Nova Scotians would not fall into this category. Nova Scotia had the highest proportion of female smokers. Furthermore, there was a higher average weekly consumption of alcohol in Nova Scotia than in the other provinces. Finally, with respect to female preventive health practices such as PAP smears and breast self examinations (BSEs), there appeared to be less knowledge and practice among Nova Scotia females over the age of 15 years than elsewhere.

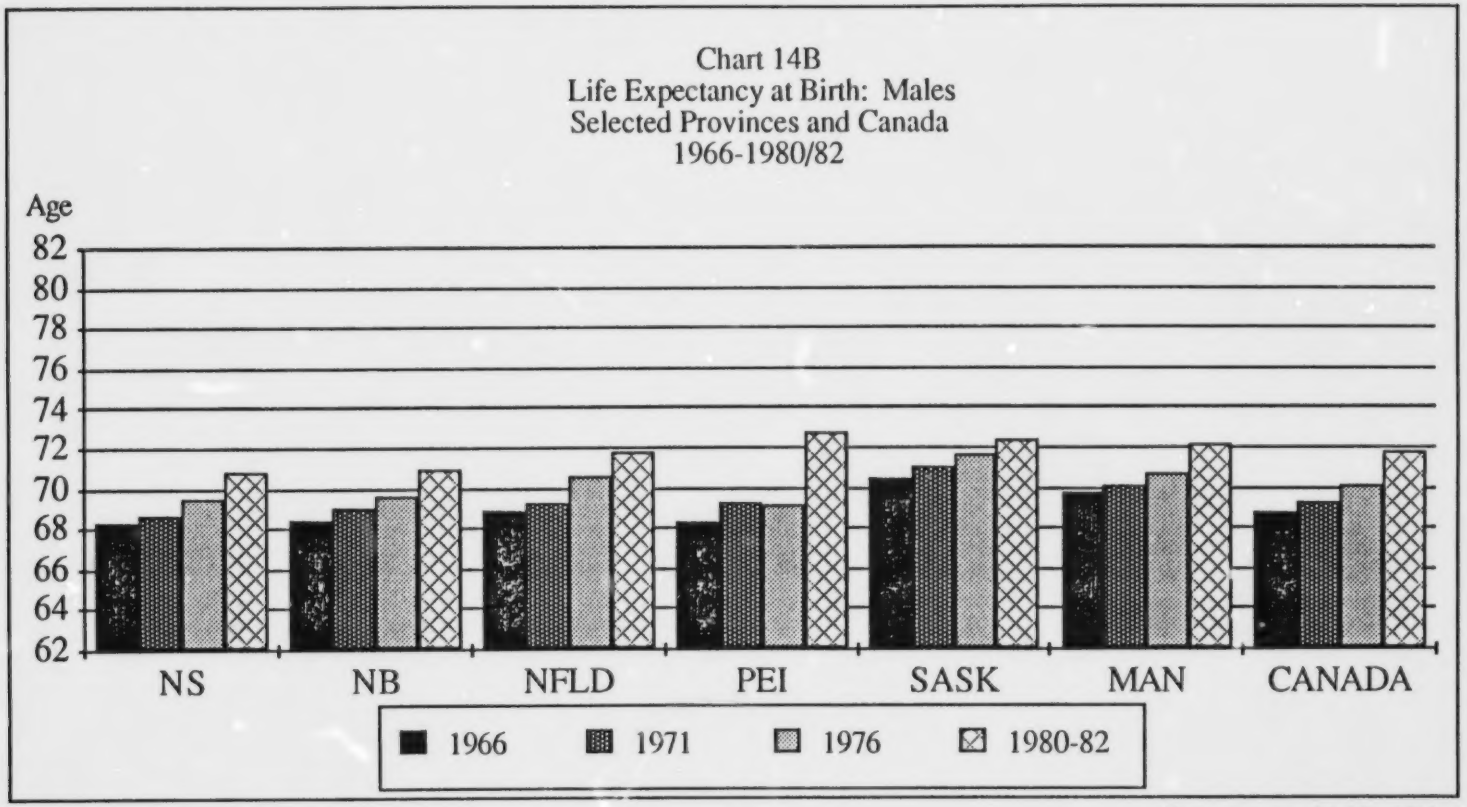
The health risk behaviours of children in Nova Scotia is noteworthy. There are a high proportion of children under age 15 who are more-than-casual smokers, drinkers, users of illegal drugs, and who are overweight, likely due to the high consumption of sugar, salt and fat in their diets. Lack of attention to these behaviours at early stages of their lives could lead to more severe health problems at later points in the life cycles of these young people.

Yet, there is good news. Based on survey results regarding beliefs and attitudes on health practices, it appears that there is a high degree of propensity for Nova Scotians to make changes which would alter such problems as hypertension and nutrition. Nova Scotians would be receptive to health promotion activities at the workplace. Furthermore, as evidenced by the significant high frequency of seatbelt use, Nova Scotians do seem to be conscious of, and willing to perform preventive health behaviours.

Chart 14A
Life Expectancy at Birth: Males and Females
Selected Provinces and Canada
1980/82

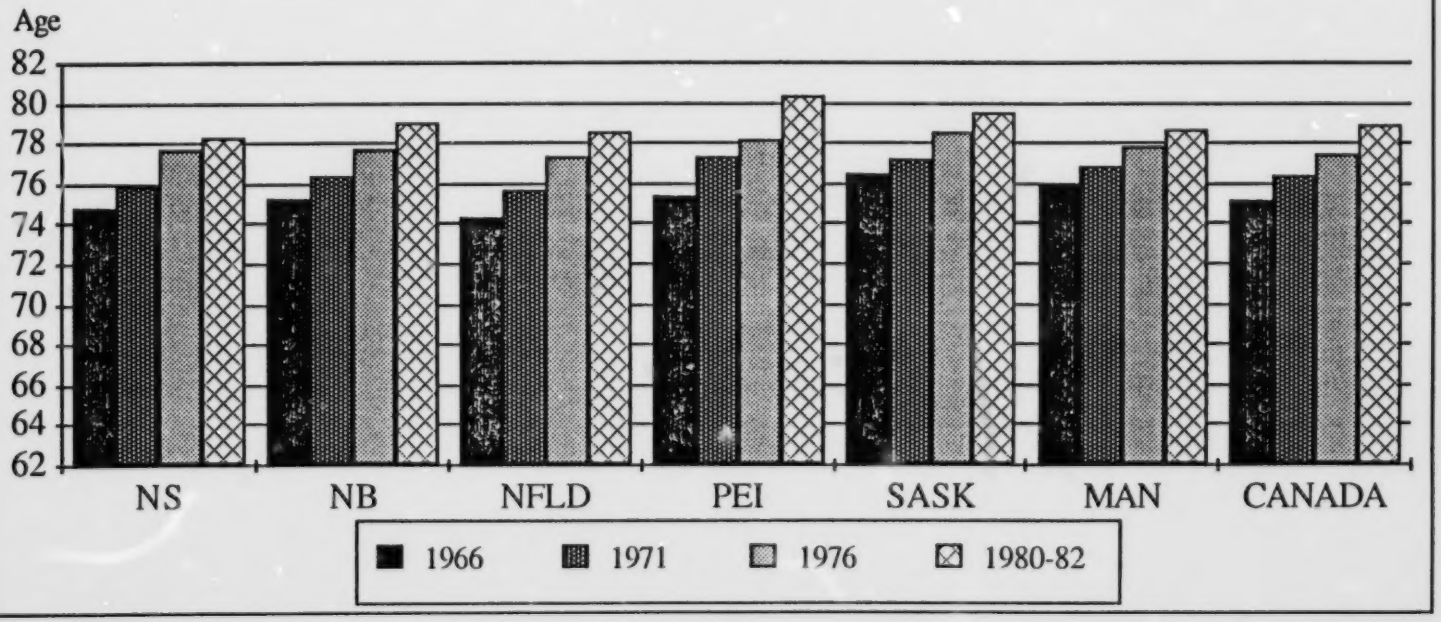


Source: see Table 19A



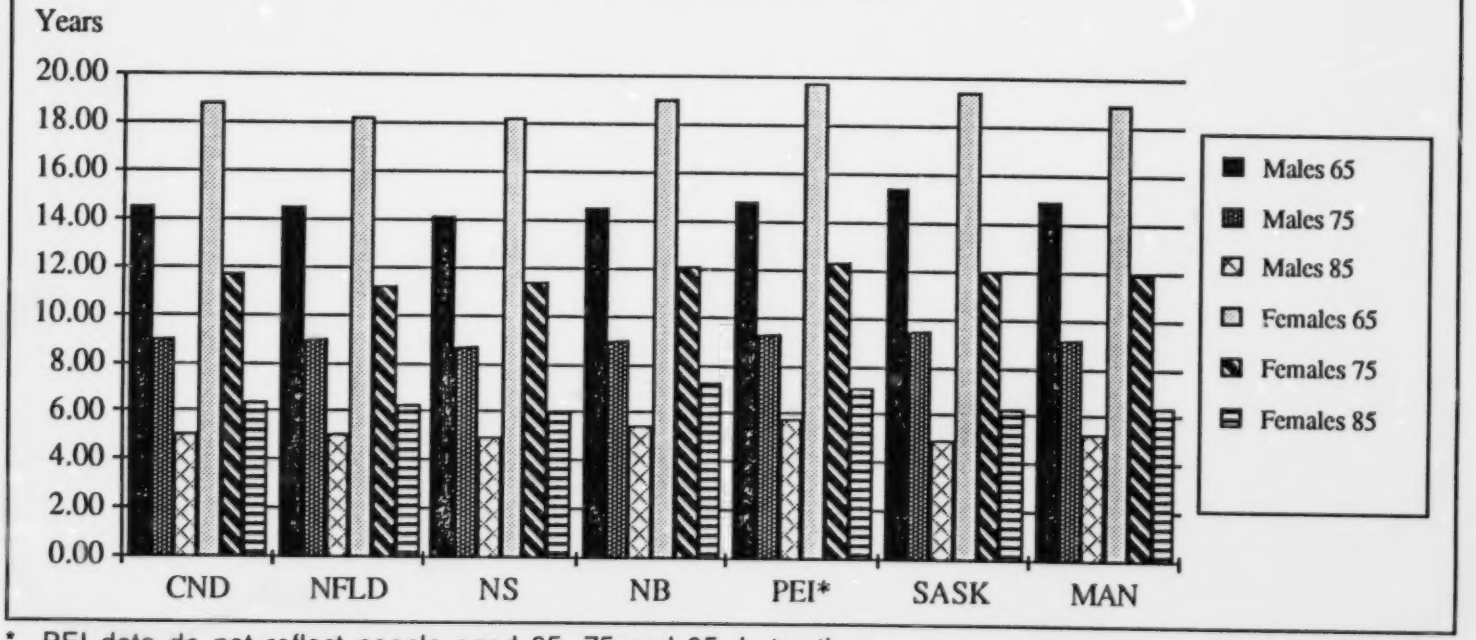
Source: see Table 19A

Table 14C
Life Expectancy at Birth: Females
Selected Provinces and Canada
1966-1980/82



Source: see Table 19A

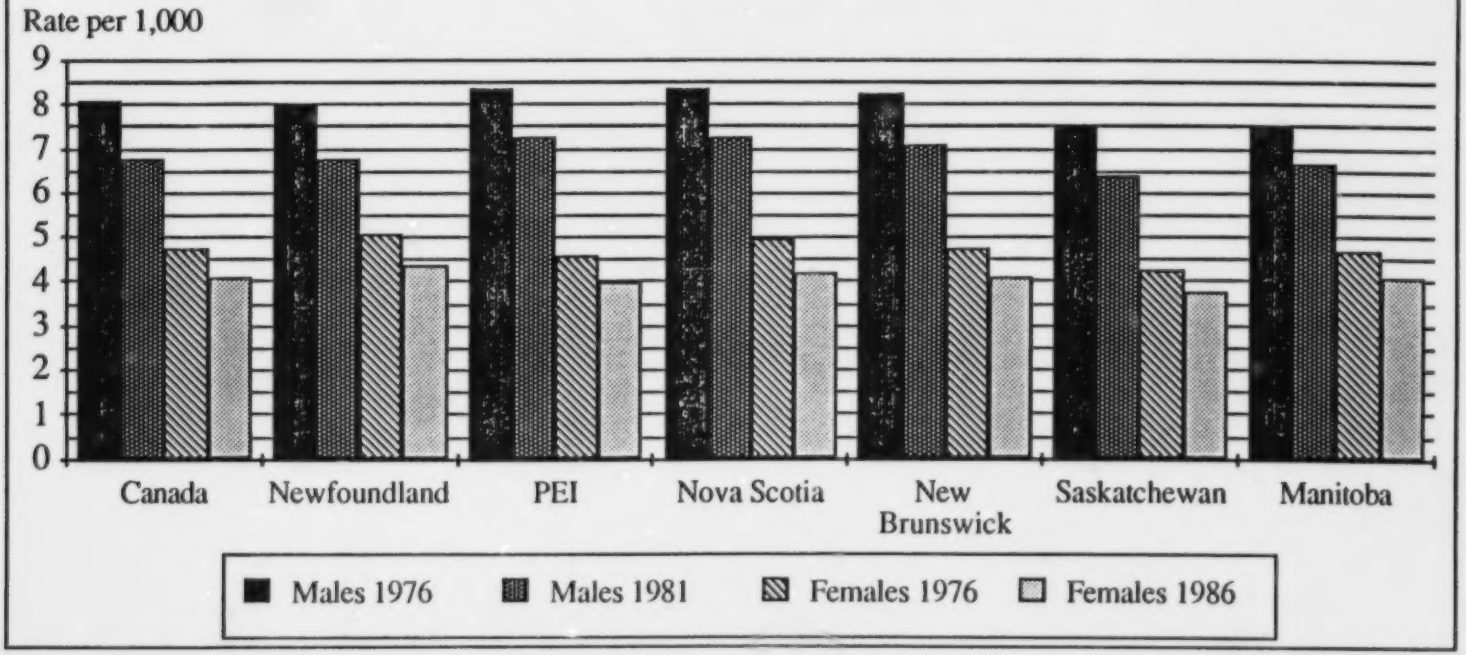
Chart 14D
Life Expectancy at Age 65, 75, and 85
Males and Females
Selected Provinces and Canada, 1980/82



* PEI data do not reflect people aged 65, 75 and 85, but rather, 5 year age groups: 65-69, 75-79, and 85-89.

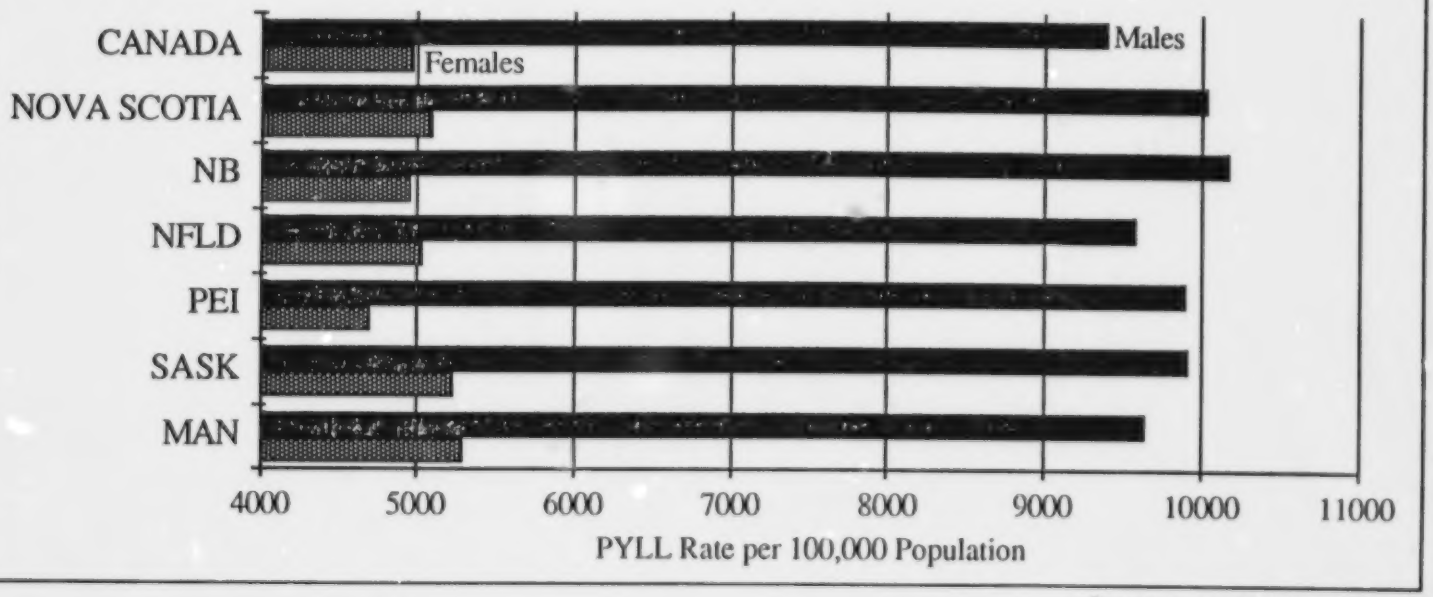
Source: Table 19C

Chart 15
Age Standardized Death Rates per 1,000 Population
Selected Provinces and Canada, 1976 and 1986

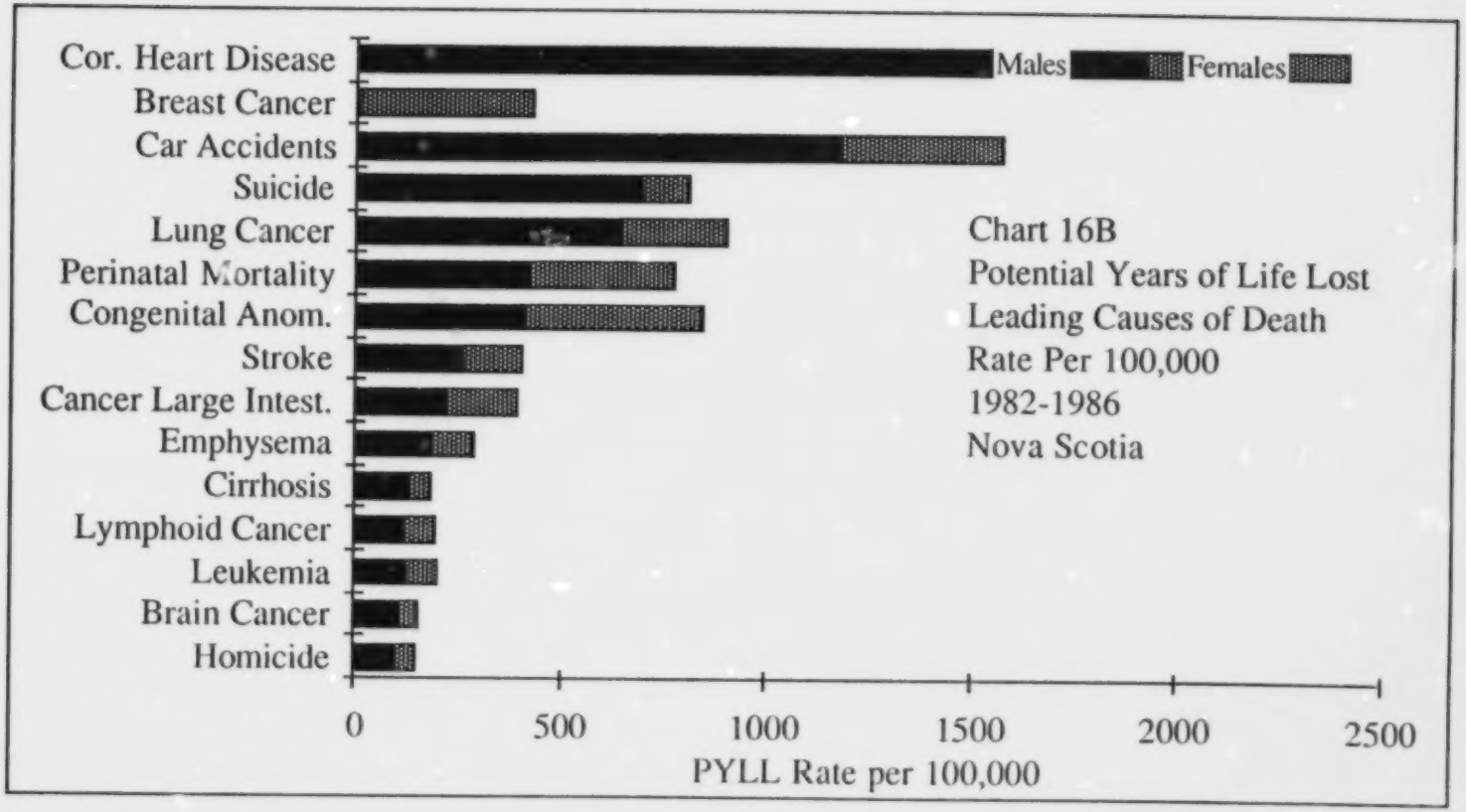


Source: see Table 21A

Chart 16A
Potential Years of Life Lost (PYLL), Rate per 100,000
All Causes of Death, Males and Females
Selected Provinces and Canada, 1982-1986

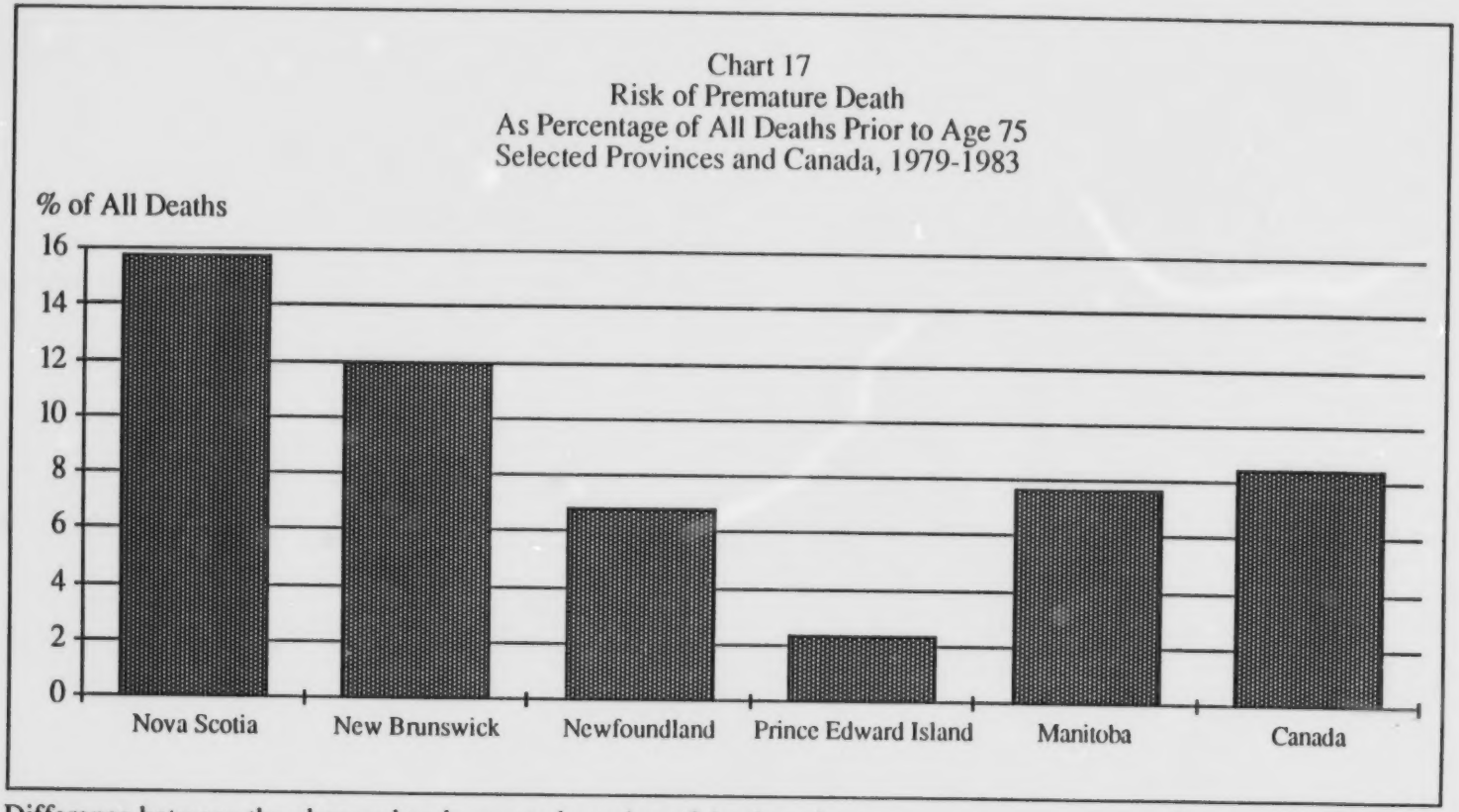


Source: see Tables 23A-B



Source: see Tables 23A-B

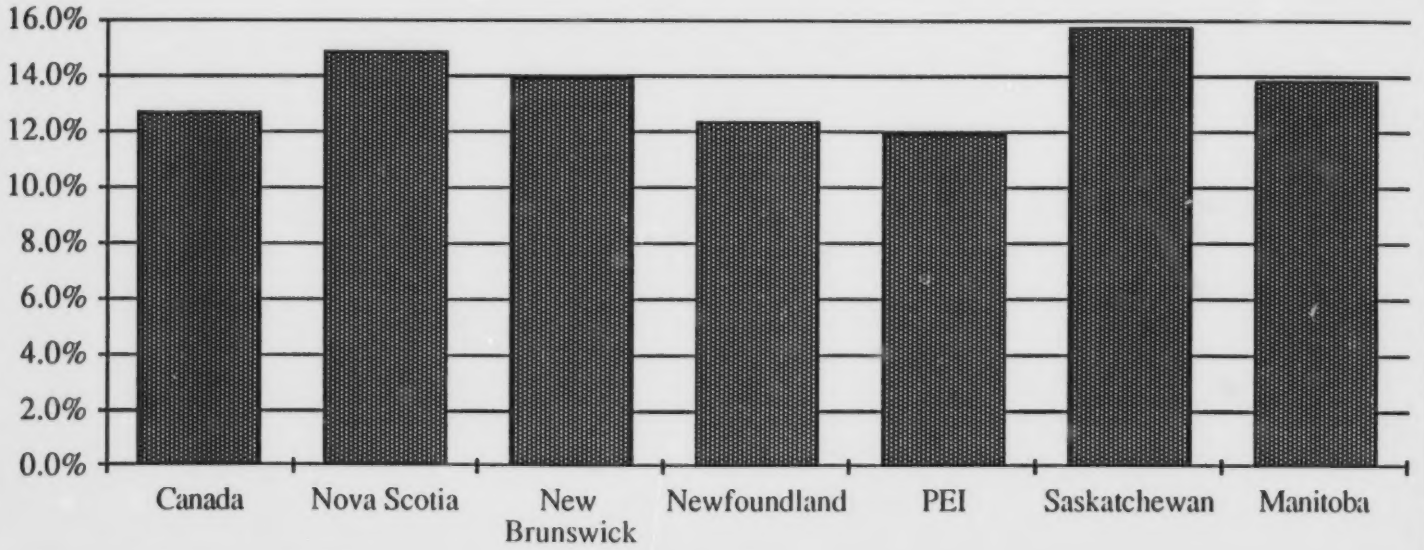
Chart 17
Risk of Premature Death
As Percentage of All Deaths Prior to Age 75
Selected Provinces and Canada, 1979-1983



Difference between the observed and expected number of deaths, where the latter is the sex/age-specific death rates for Saskatchewan.

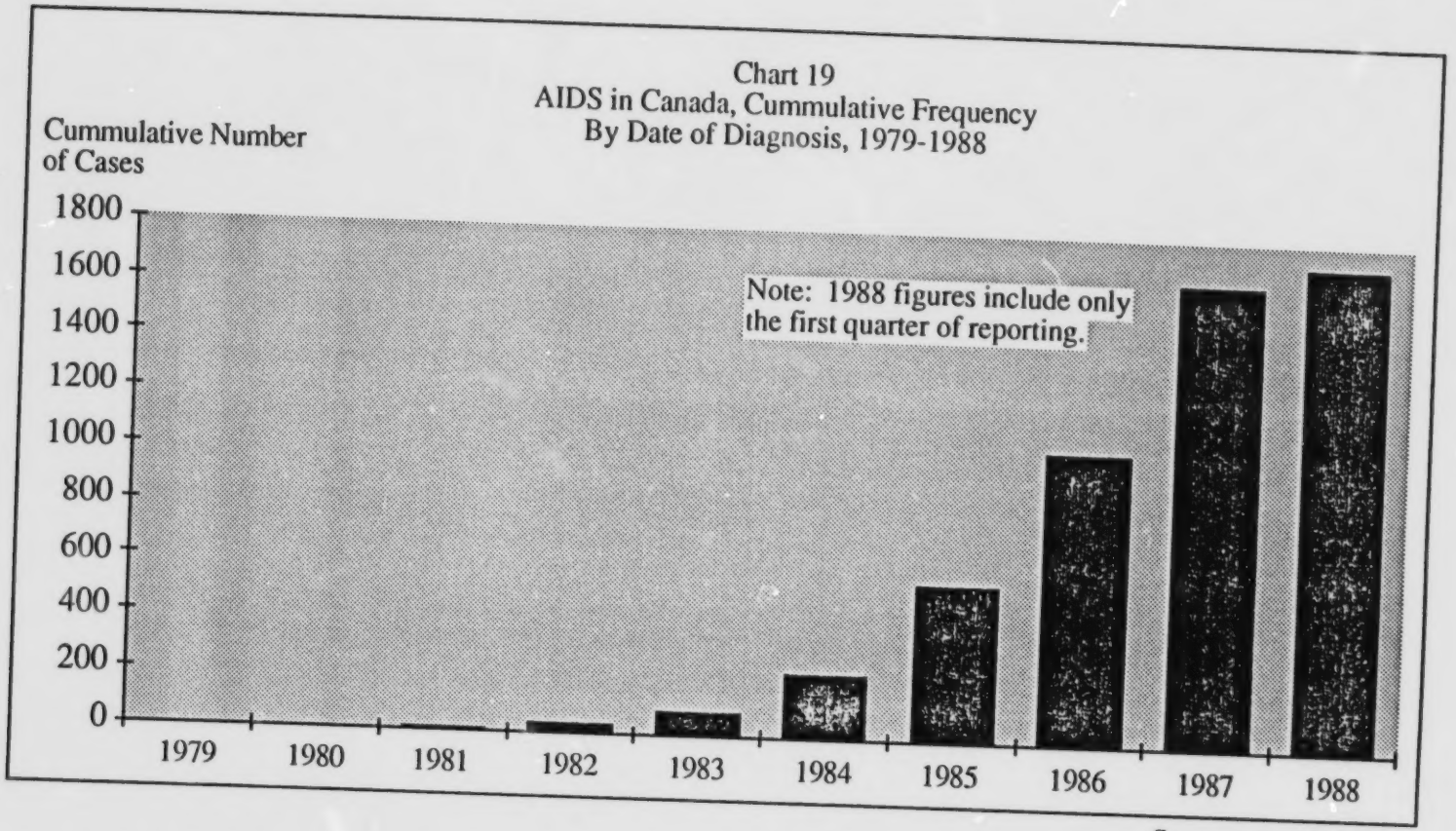
Source: see Table 25

Chart 18
Percentage of the Population Disabled
Both Sexes and All Ages
Selected Provinces and Canada, 1984



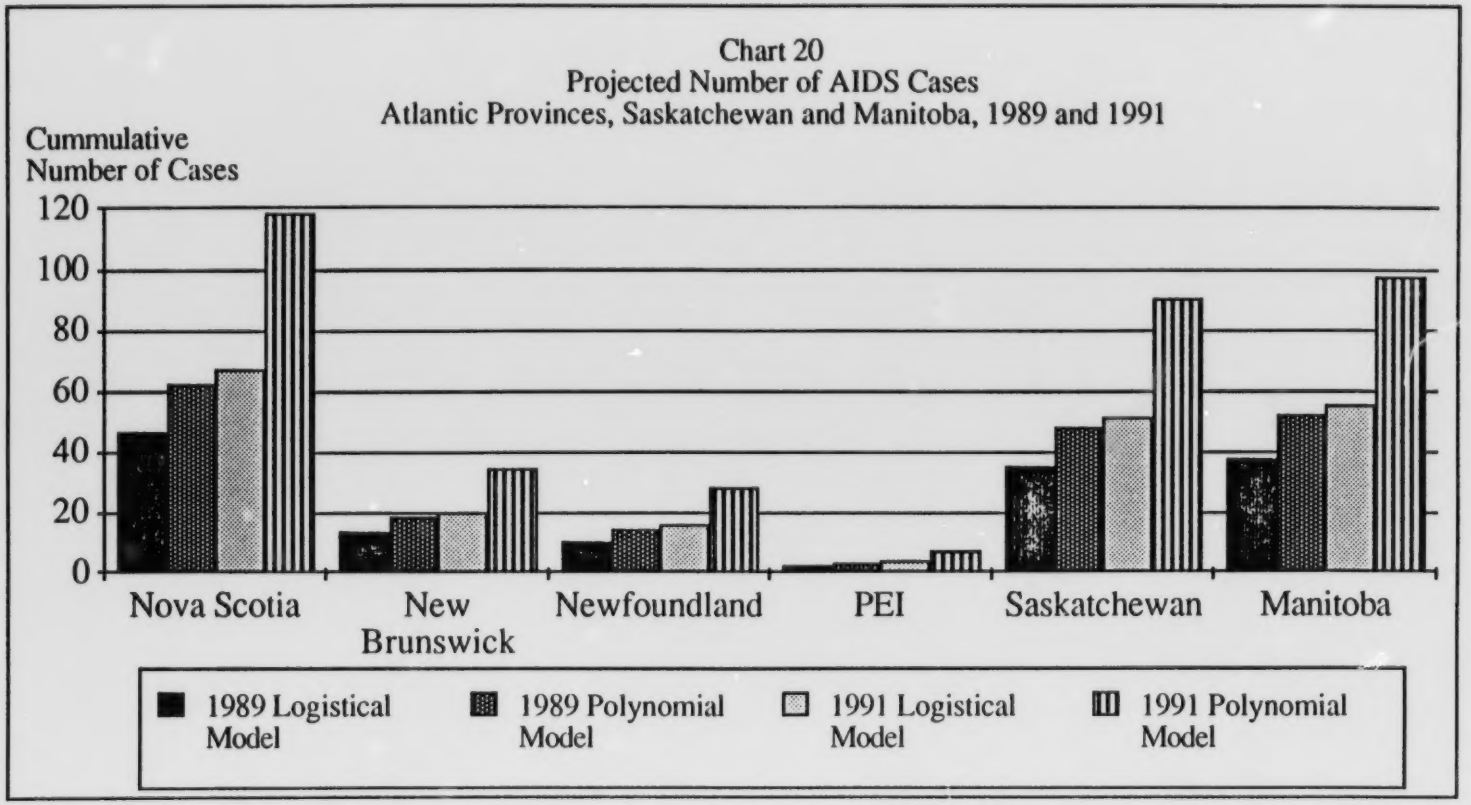
Source: see Table 28

Chart 19
AIDS in Canada, Cummulative Frequency
By Date of Diagnosis, 1979-1988



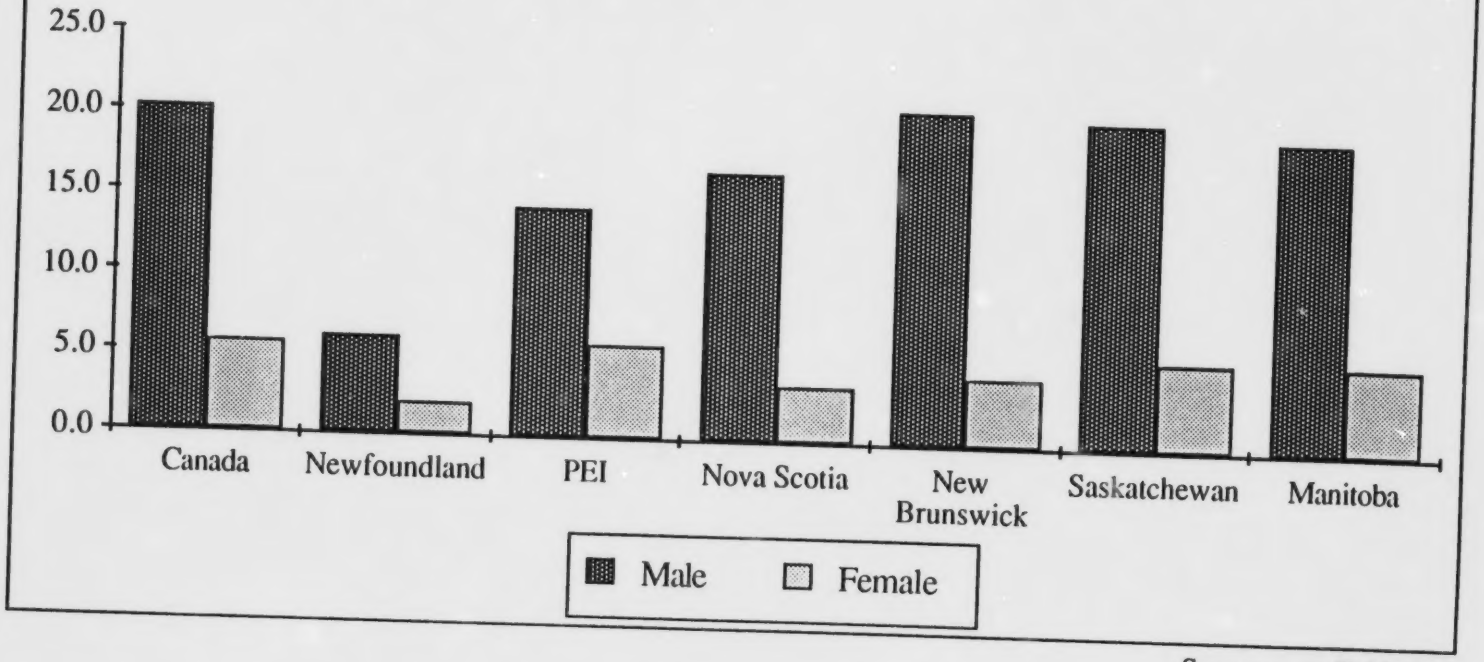
Source: see Table 32

Chart 20
Projected Number of AIDS Cases
Atlantic Provinces, Saskatchewan and Manitoba, 1989 and 1991



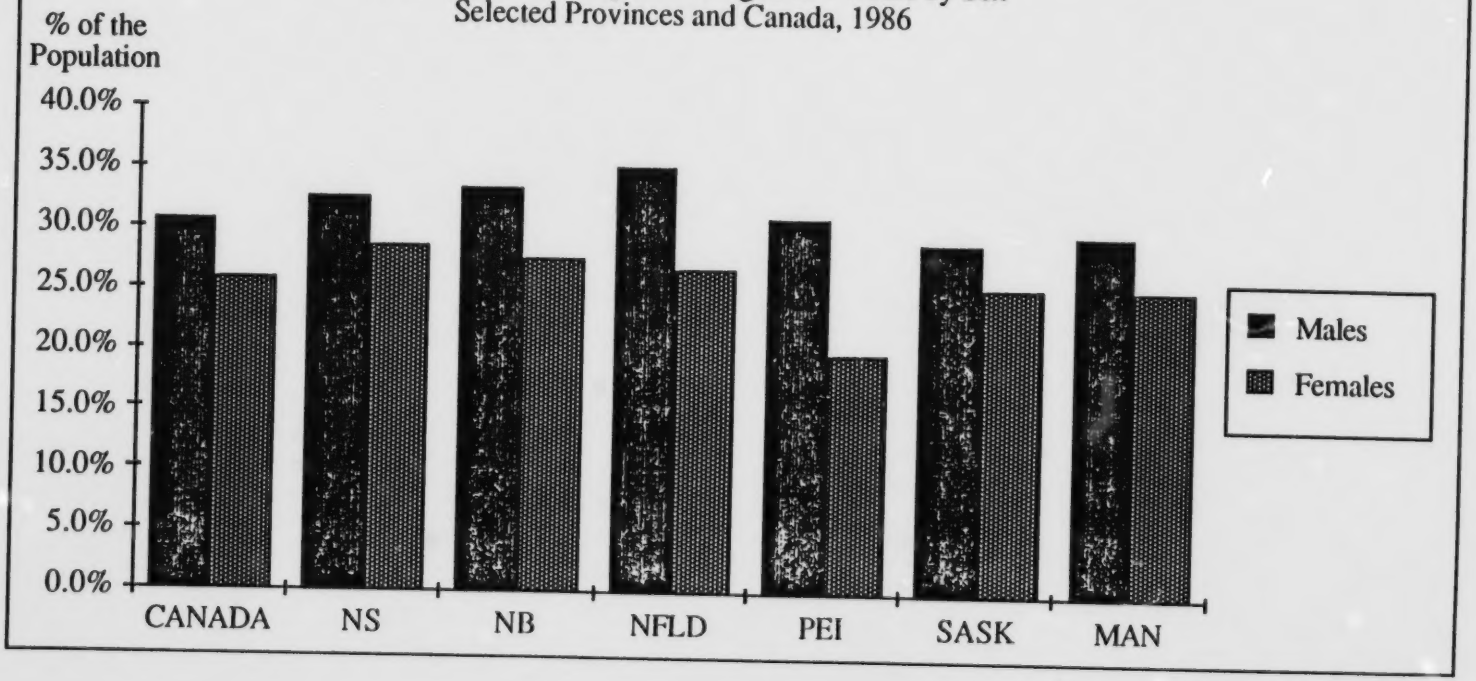
Source: see Table 32

Chart 21
Age Standardized Suicide Rates, Males and Females
Canada, Atlantic Provinces and Saskatchewan, 1986



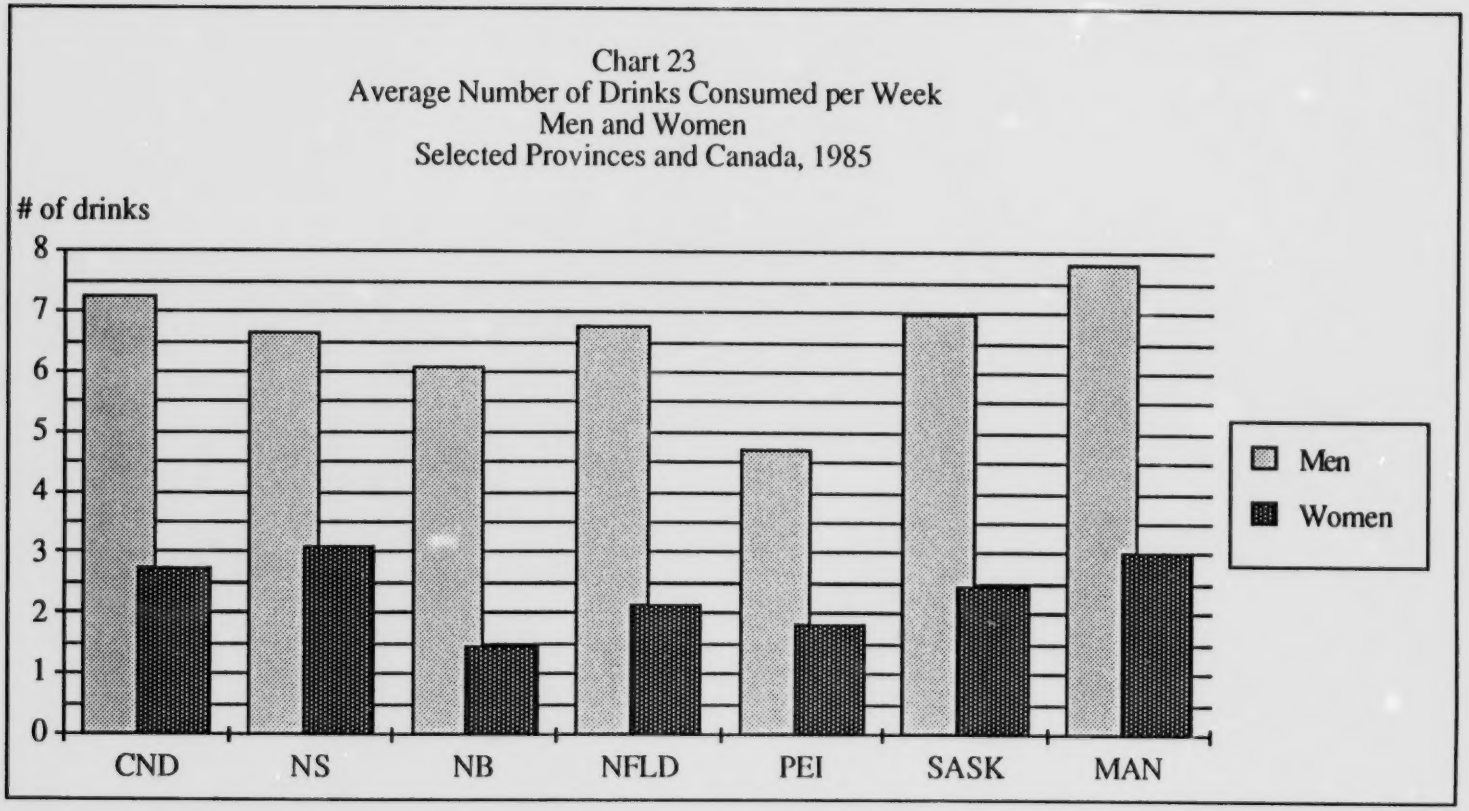
Source: see Table 39

Chart 22
Regular Cigarette Smokers
Percentage of the Population Aged 15+ Years by Sex
Selected Provinces and Canada, 1986



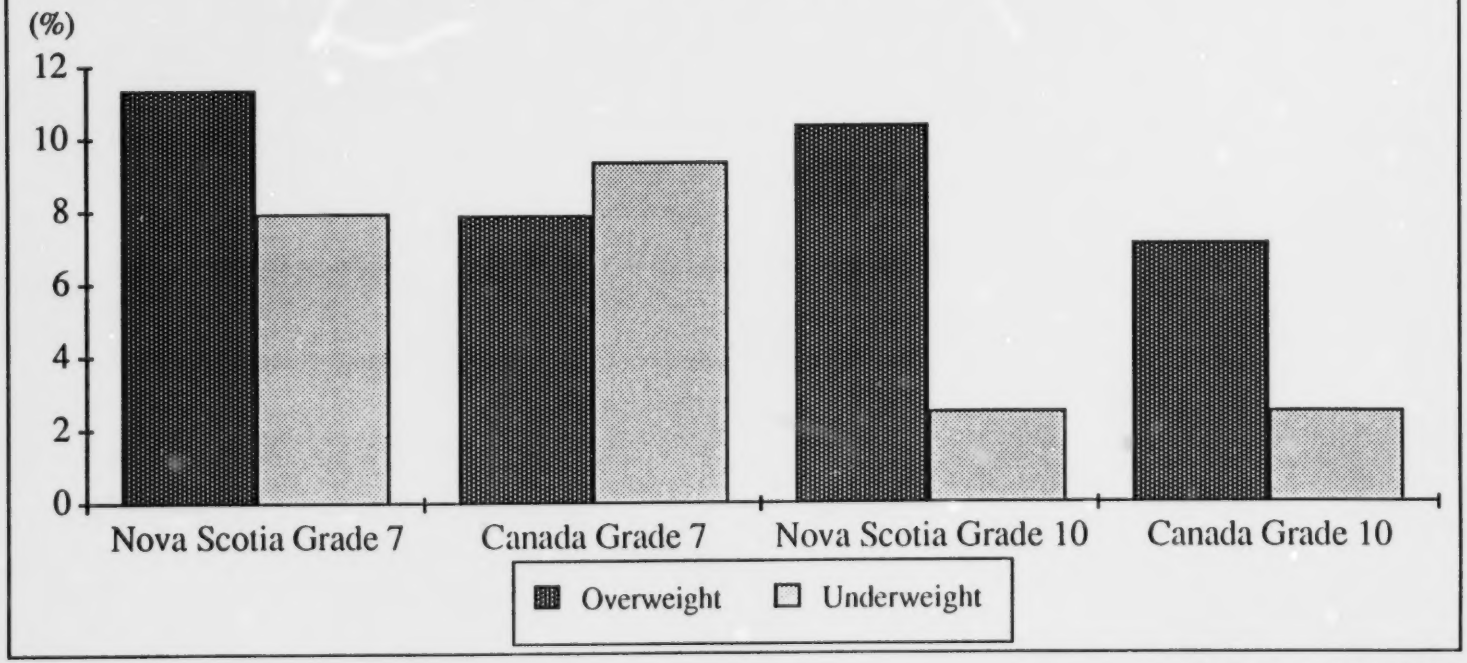
Source: see Table 42

Chart 23
Average Number of Drinks Consumed per Week
Men and Women
Selected Provinces and Canada, 1985



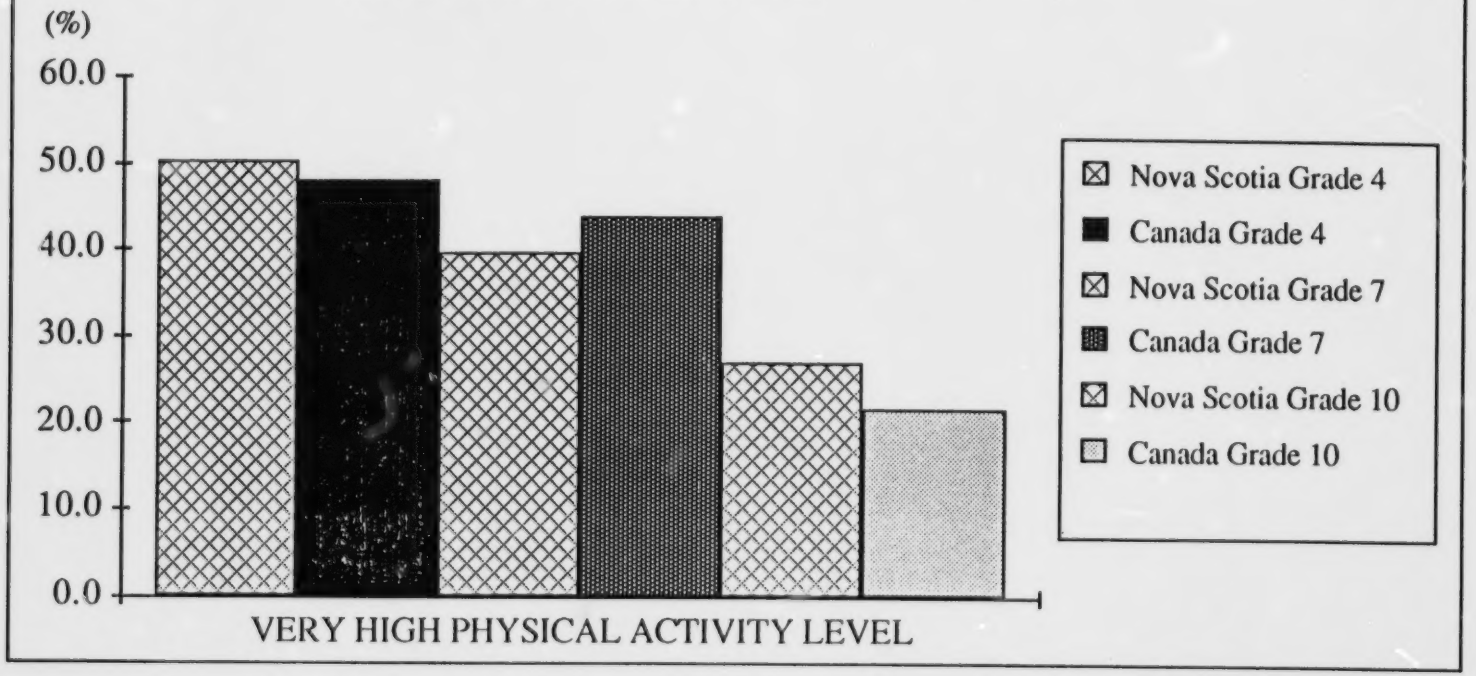
Source: see Table 44

Chart 24
Percentage of Young People Classified as Overweight and Underweight
Nova Scotia and Canada, 1984-85



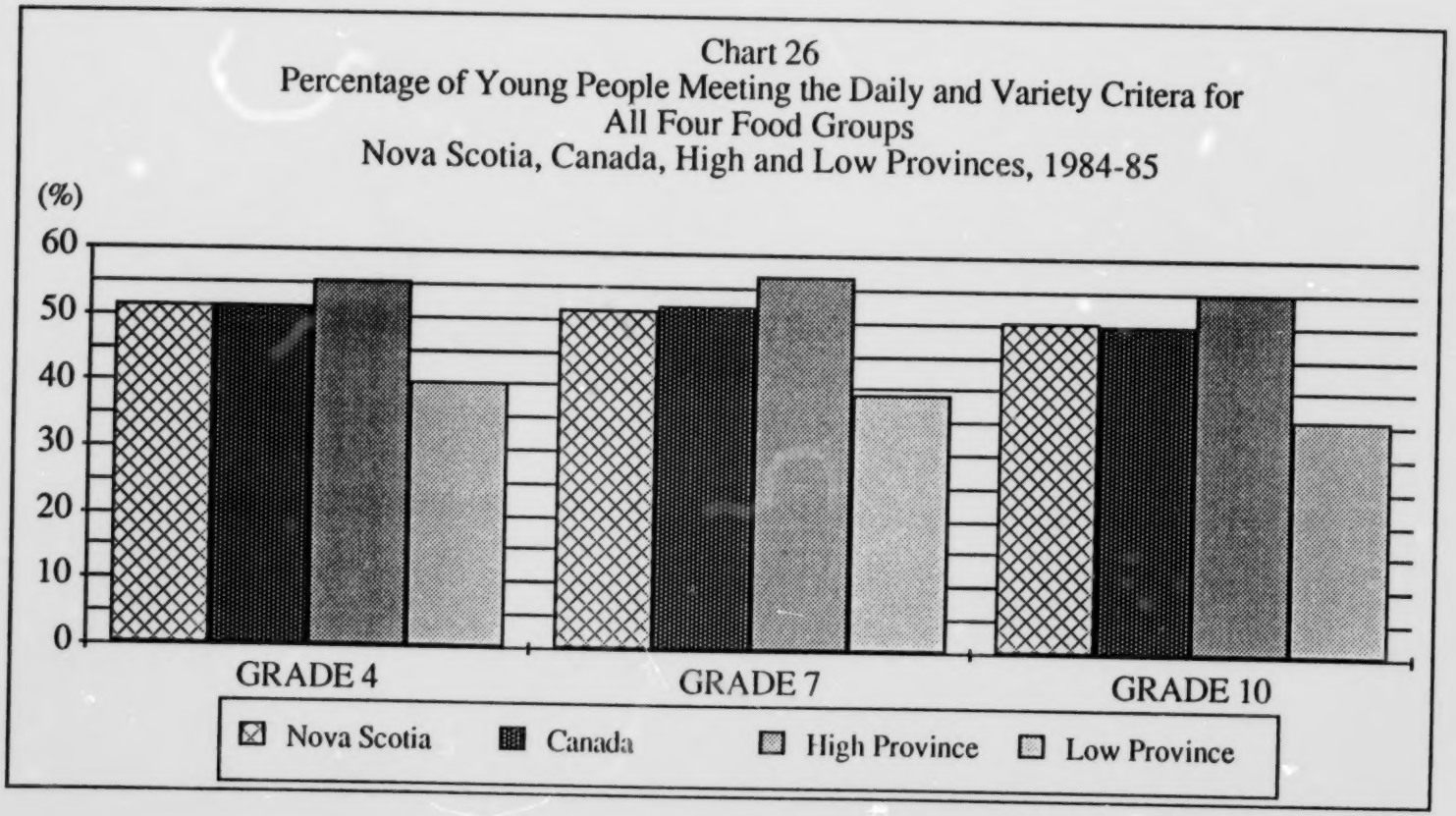
Source: see Table 62

Chart 25
Percentage of Young People with a High Level of Physical Activity
Nova Scotia and Canada, 1984-85



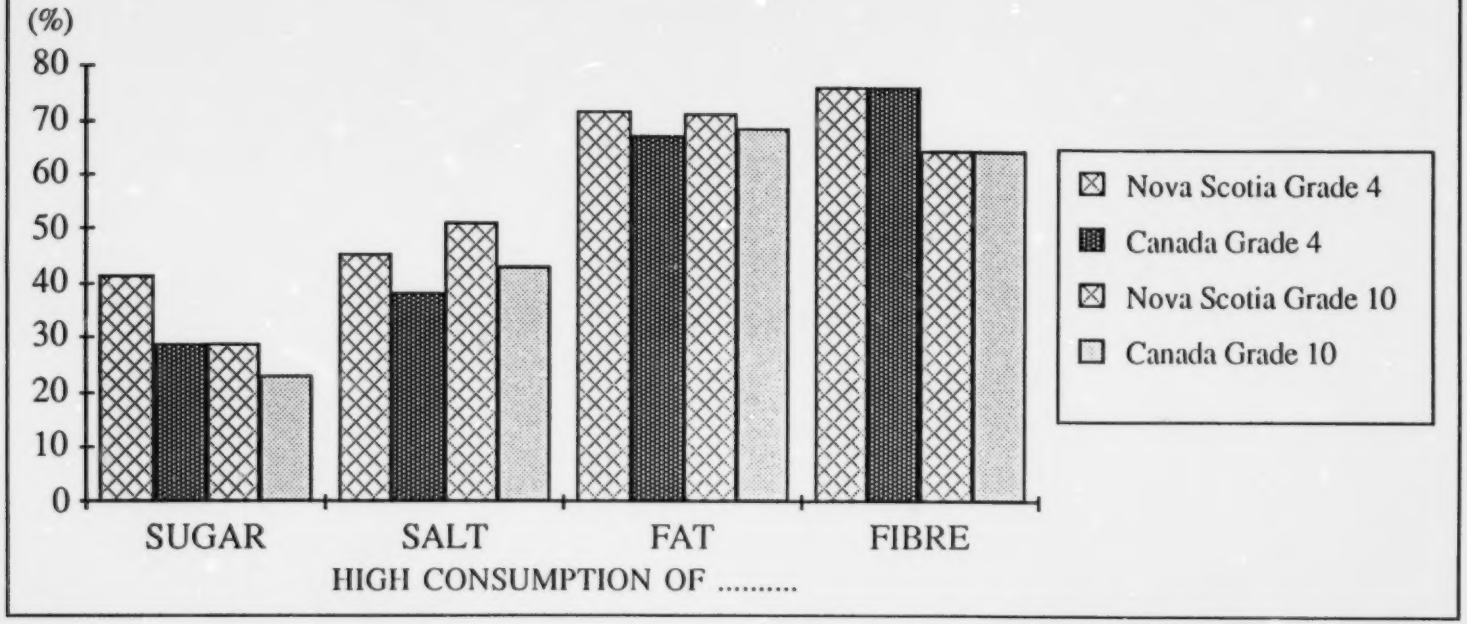
Source: see Table 63

Chart 26
Percentage of Young People Meeting the Daily and Variety Critera for All Four Food Groups
Nova Scotia, Canada, High and Low Provinces, 1984-85



Source: see Table 64

Chart 27
Percentage of Young People Classified as High in the Consumption of Foods High in Selected Substances
Nova Scotia and Canada, 1984-85



Source: see Table 65

IV. HEALTH CARE DELIVERY

The latest available expenditures data for the provinces indicate that the cost of health care services in Canada consumed 8.6% of the country's gross domestic product (GDP), see Table 70. Provincial health expenditures as a percentage of provincial GDP ranged from 8.9 % in Saskatchewan to 12.4% in Prince Edward Island. Nova Scotia spent 10.8% of its GDP in 1985 on health care services, the lowest proportion of the Atlantic provinces, see Chart 28. A more in-depth treatment of health care expenditures is given in another report of this series.[4]

Looking at the provincial government component of health expenditures, it is seen that since 1974 - 75, the highest rate of growth was found in New Brunswick, followed by Saskatchewan, Nova Scotia, Manitoba, Prince Edward Island, and Newfoundland, see Chart 29 and Table 71.

Although constant dollar figures do not exist for provincial health expenditures, at the national level it is observed that current dollar per capita health expenditures increased almost 200% between 1975 and 1985, see Chart 30. In constant dollars, these per capita costs climbed less than 50%, with the largest increase occurring between 1979 and 1982, a period of high inflation in Canada, see Table 72.

Provincial health expenditures per capita were highest in Saskatchewan, followed by Manitoba, Nova Scotia, New Brunswick, Newfoundland, and Prince Edward Island, see Chart 31. As can be seen, the growth trends for each of the provinces are very similar. Also, as is discussed elsewhere, the rate of growth in provincial per capita health expenditures has been higher than that for the Canada total.

Hospitals represent the largest single component of health expenditures, see Charts 32A-B. While this proportion has decreased overall in Canada between 1975 and 1985, the most significant decline occurred in Saskatchewan, followed by Manitoba, New Brunswick, Prince Edward Island, Nova Scotia and Newfoundland. Except for Saskatchewan and Manitoba, the proportion each of the Atlantic provinces spent on hospitals in 1985 exceeded the national figure. There appears to be some "shifting" of expenditures to "other institutions" occurring in Manitoba and Saskatchewan, New Brunswick, PEI, and Newfoundland. Noteworthy trends are the increases in drug expenditures and the decreases in capital expenditures in the Atlantic provinces.

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[4] Angus, D.E., P. Manga and K. Tregunna (1989), "Inter-provincial Comparison of Health Expenditures", for the Nova Scotia Royal Commission on Health Care.

The private share of total health expenditures has increased in each of the Atlantic provinces -- in Nova Scotia this proportion was almost 25% in 1985. Manitoba's proportion has remained constant at 22%. In Saskatchewan, on the other hand, private health expenditures as a percentage of the total fell from 27% to just over 19%, see Table 73.

A major component of hospital expenditures is the wage and salary bill, which ranges between two-thirds and three-quarters of the hospital's budget. In each of the provinces the nurse-population ratios have increased, see Chart 33. In 1976, Nova Scotia, (tied with Saskatchewan and Manitoba), had the second highest ratio after PEI; in 1986, this ratio was the highest, followed by New Brunswick, Saskatchewan, Manitoba, Newfoundland and Prince Edward Island, see Table 74. Except for New Brunswick and Prince Edward Island, the growth trends were increasing consistently during the period 1976 to 1986.

Physician-population ratios for Nova Scotia have been very similar to those for Canada as a whole between 1976 and 1986, see Chart 34 and Table 75. In 1986, Nova Scotia had the highest physician-population ratio, followed closely by Manitoba, and then by Newfoundland (which incidentally, has shown the most significant growth), Saskatchewan, Prince Edward Island, and New Brunswick. The ratio of specialist physicians to population has been significantly higher in Manitoba and Nova Scotia, and these ratios have followed closely the national growth trend, see Chart 35. Growth in the supply of physicians and nurses has exceeded the rate of population growth in each of the provinces in this study. By and large, there have been noticeable increases in the size of other health professional groups, e.g., occupational therapists, physiotherapists, speech (and related) therapists, dentists and medical laboratory technologists, see Table 74.

Perhaps one of the more challenging developments which looms on the horizon is the adjustments that are likely to occur, especially in the hospital environment, as the supply of physicians continues to expand while (supposed) shortages of nurses persist and perhaps even worsen.

As can be observed, the ratio of public hospital beds per 1,000 population has been climbing and decreasing during the period 1961 to 1985/86 in each province except Prince Edward Island, where this ratio has been declining gradually since 1961, see Chart 36. Since 1981, the ratio of beds per 1,000 population decreased for every province except New Brunswick. In 1985/86, the highest number of beds per capita were in Saskatchewan, followed by New Brunswick, Nova Scotia, Manitoba, Newfoundland and Prince Edward Island, see Table 76. As was highlighted earlier, there does appear to be some shifting occurring between expenditures on hospitals and other institutions. This shift may result in a further lowering of the ratio of hospital beds per population in the years to come.

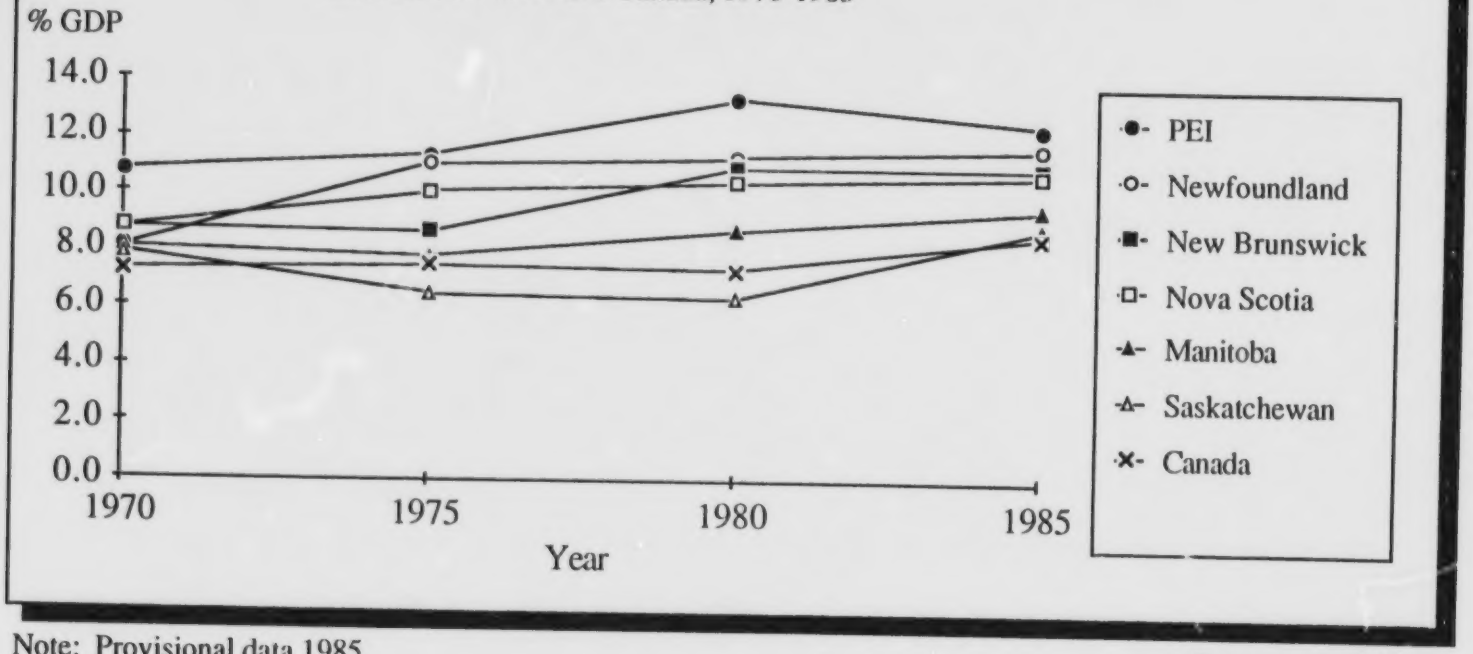
With respect to health care technology and the potential impact of its diffusion, virtually nothing exists at the provincial level. It was noted earlier that "capital" expenditures have decreased significantly as a proportion of total health expenditures in each of the Atlantic provinces. Even at the more global national level, the paucity of data here is severe. As important as technology supposedly is in the health care sector, we do not have information which would help us to understand and to manage the effects of technological change in this sector. Technology is more than machinery. Medical technology encompasses "techniques, drugs, equipment, and procedures used by health care professionals in delivering health care to individuals, and the systems with which sure care is delivered," (IOM, 1985). If the information which does exist at the national level is any indication, then the impact which computer technology is making in the health care sector appears to be limited primarily to "word processing". Given the potential for computer technology and other areas, e.g., telecommunications, it would seem that there is significant scope for the more extensive and comprehensive use of technology in health care services.

In a recent study by the Institute of Medicine of the United States National Academy of Science, (IOM, 1985), ten factors affecting the adoption and abandonment of medical technologies are outlined. Policy makers have little influence over four of these factors, namely prevailing theory, attributes of the innovation, features of the clinical situation, and presence of an advocate. Over the short term, policy makers have some influence over three factors: environmental constraints and insensitivities, conduct and methods of evaluation, and channels of communication. In the longer run, policy makers can influence three other factors related to the development of technology, namely the practice setting, the decision process and characteristics of the potential adopter. In order to assess the impact of technology in terms of its impact on costs, effectiveness, appropriateness, efficiency, quality and ethical parameters, technology assessment is sorely needed in Canada and internationally. Fenney, Guyatt and Tugwell, in their book, "Health Care Technology: Effectiveness, Efficiency & Public Policy," have described the need for and process of technology assessment.

Summary: Health Care Delivery

While we know that we spend a sizable portion of GDP on health care services, that we have large numbers of health professionals, hospital beds, etc., we cannot say too much about the impact these "intermediate goods and services" have on effectiveness or efficiency in the health care system. There are few measures of appropriateness, outcome or quality, see the study on "inter-provincial comparison of health care expenditures." With increased concerns related to finances and with a more aware and involved public, effectiveness and efficiency measures are long overdue.

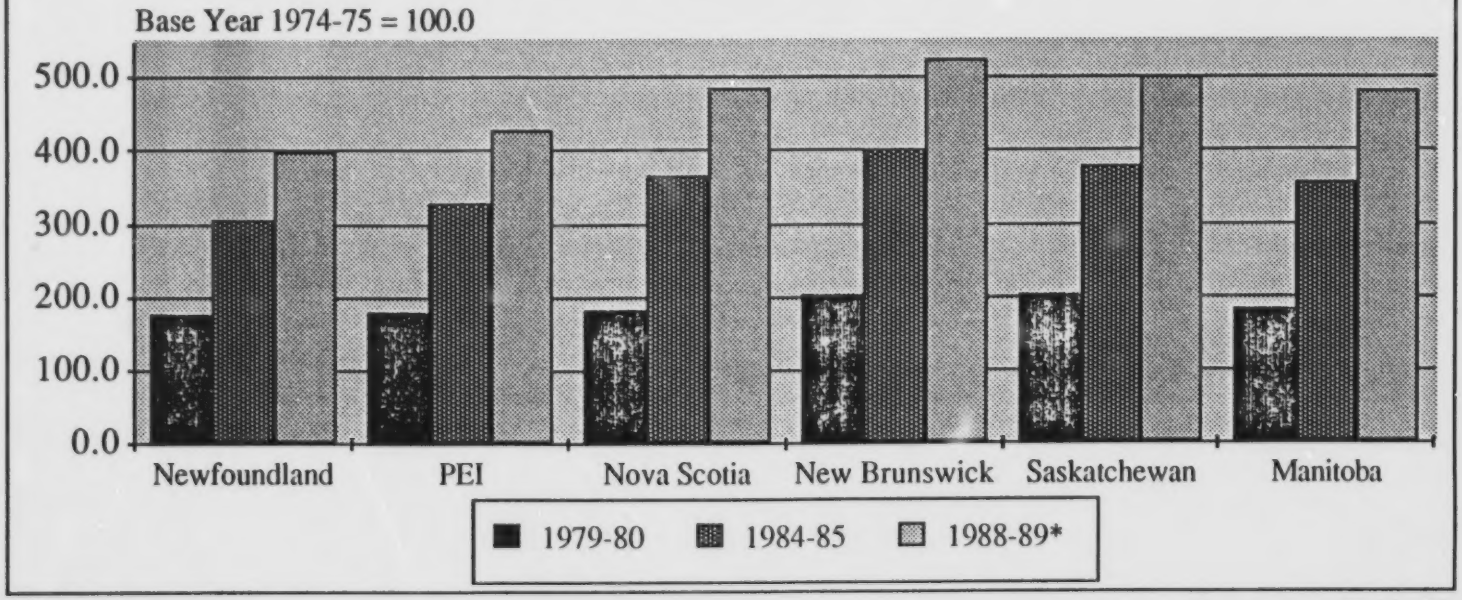
Chart 28
Total Health Expenditures
% Gross Domestic Product (GDP)
Selected Provinces and Canada, 1970-1985



Note: Provisional data 1985.

Source: see Table 70

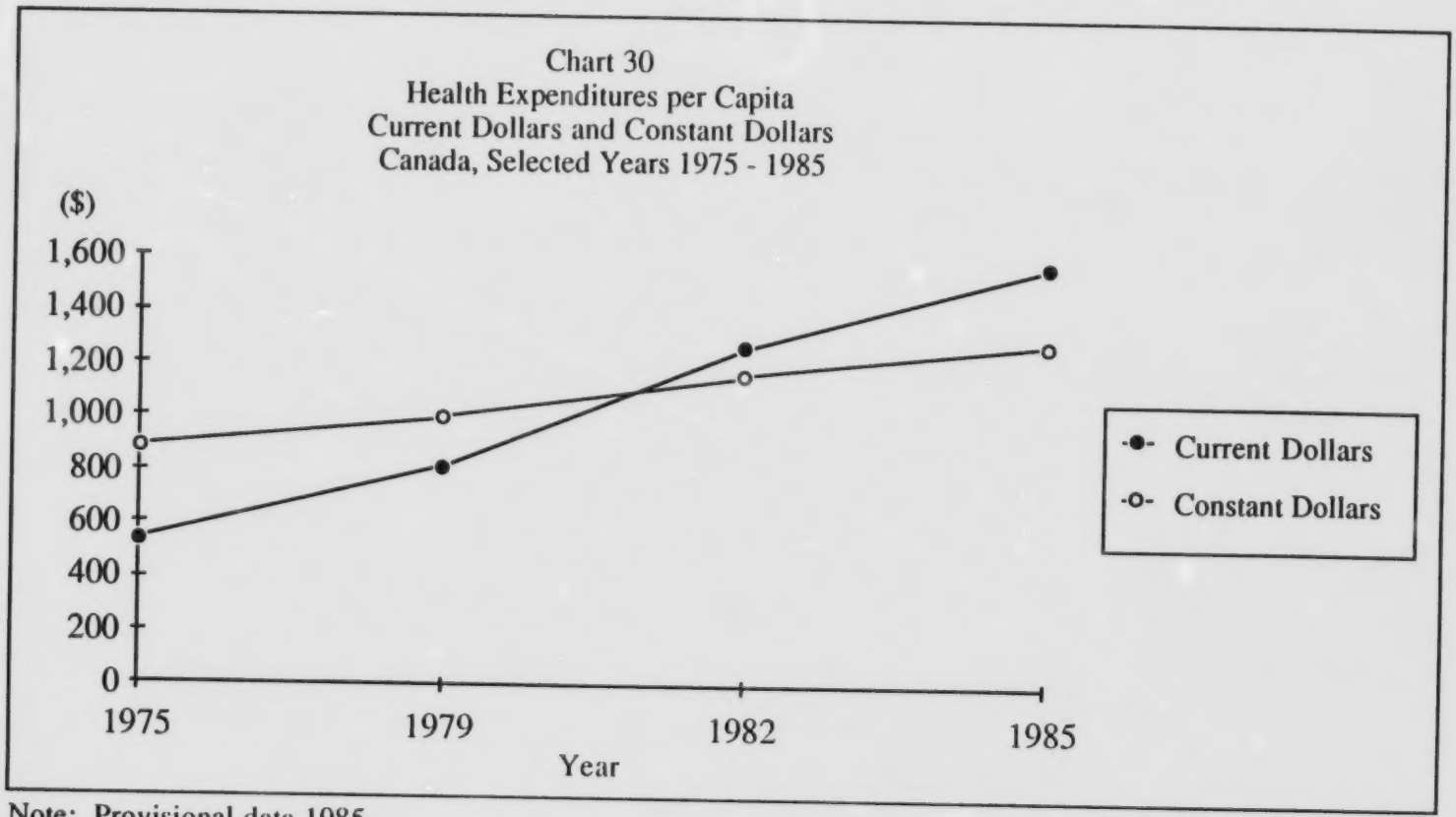
Chart 29
Index of Change in Provincial Health Expenditures
Atlantic Provinces, Saskatchewan and Manitoba
Selected Years, 1974/75 - 1988/89



* Preliminary data

Source: see Table 71

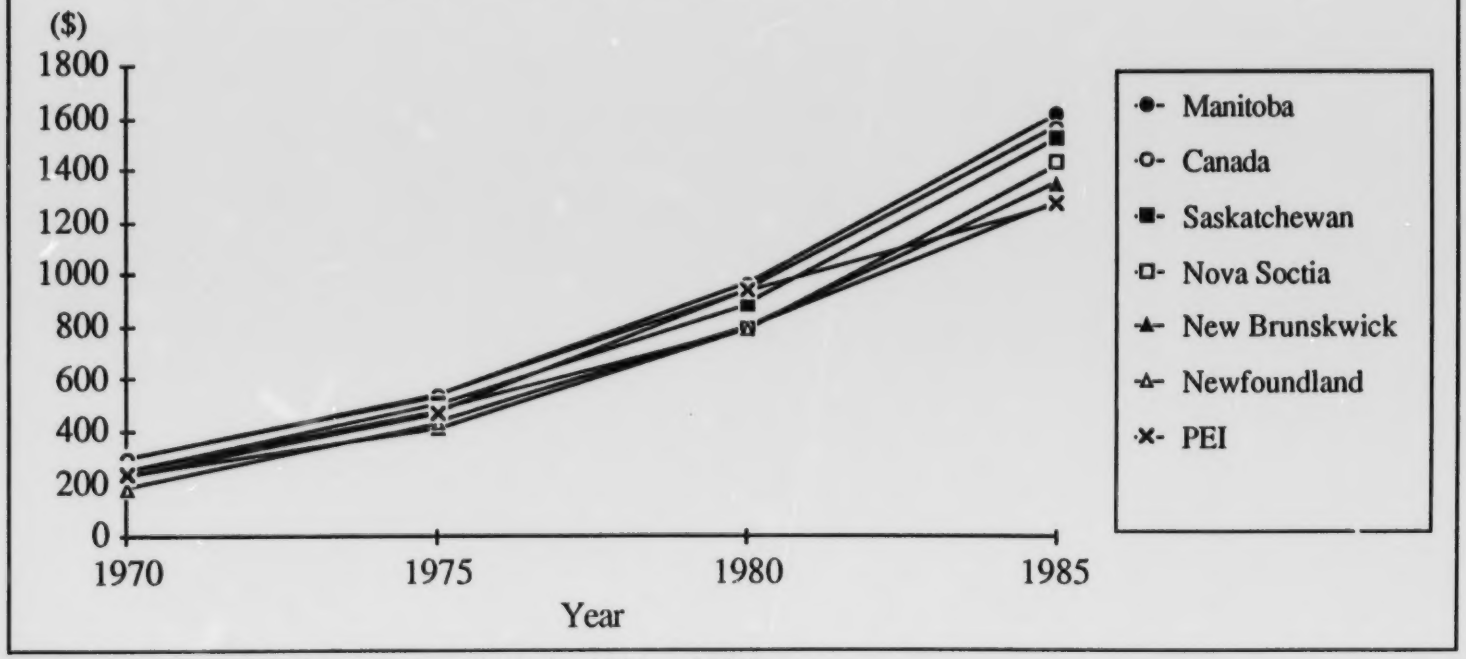
Chart 30
Health Expenditures per Capita
Current Dollars and Constant Dollars
Canada, Selected Years 1975 - 1985



Note: Provisional data 1985.

Source: see Table 72

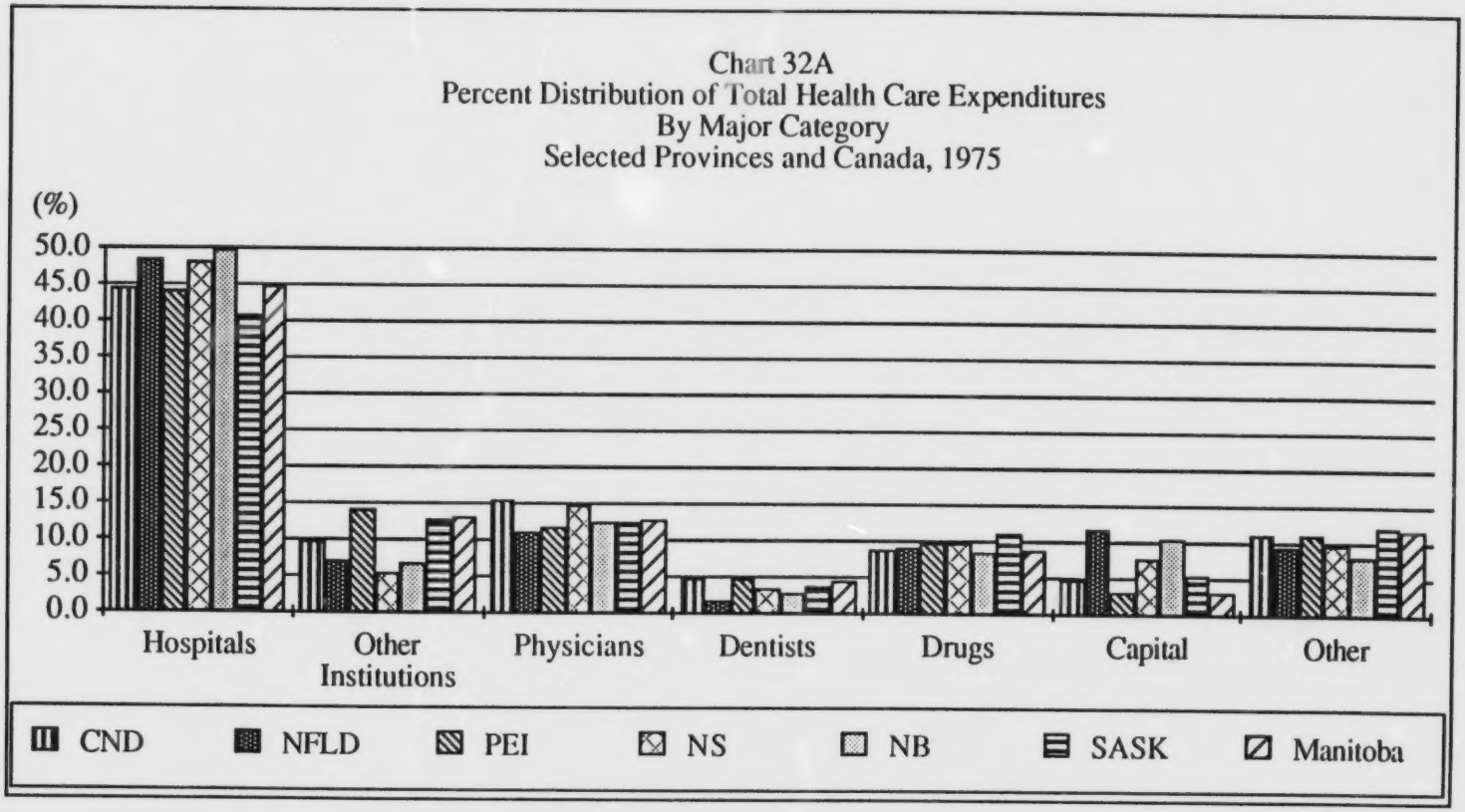
Chart 31
Per Capita Health Expenditures
Selected Provinces and Canada, 1970-1985



Note: Provincial estimates are not available for 1986 and 1987.
Provisional data 1985.

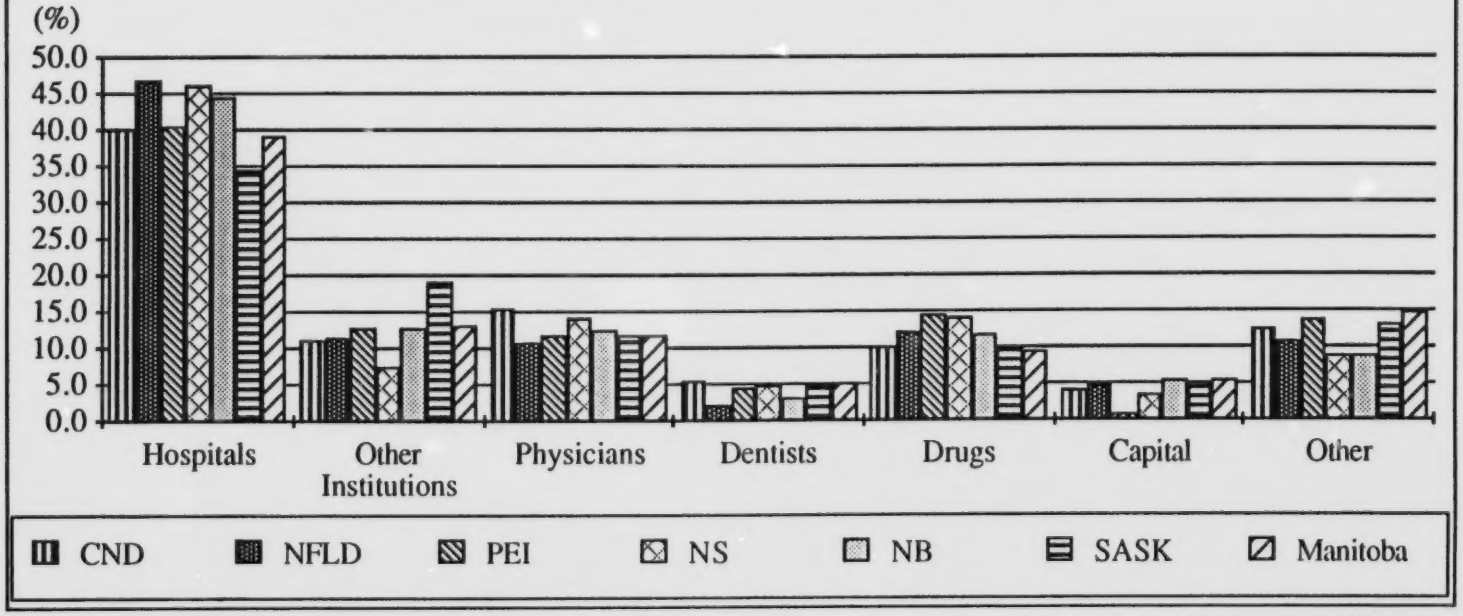
Source: see Table 70

Chart 32A
Percent Distribution of Total Health Care Expenditures
By Major Category
Selected Provinces and Canada, 1975



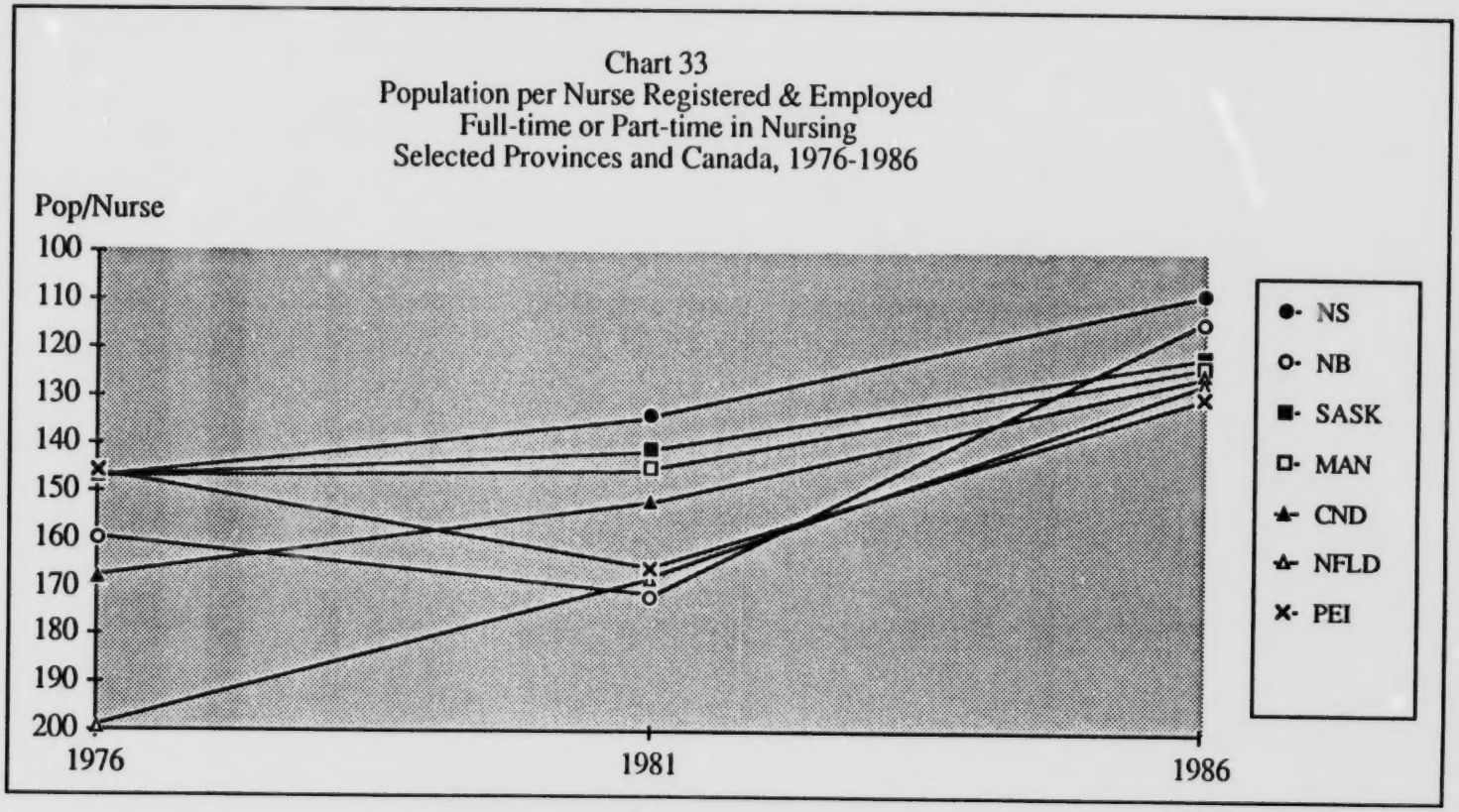
Source: see Table 73

Chart 32B
Percent Distribution of Total Health Care Expenditures
By Major Category
Selected Provinces and Canada, 1985



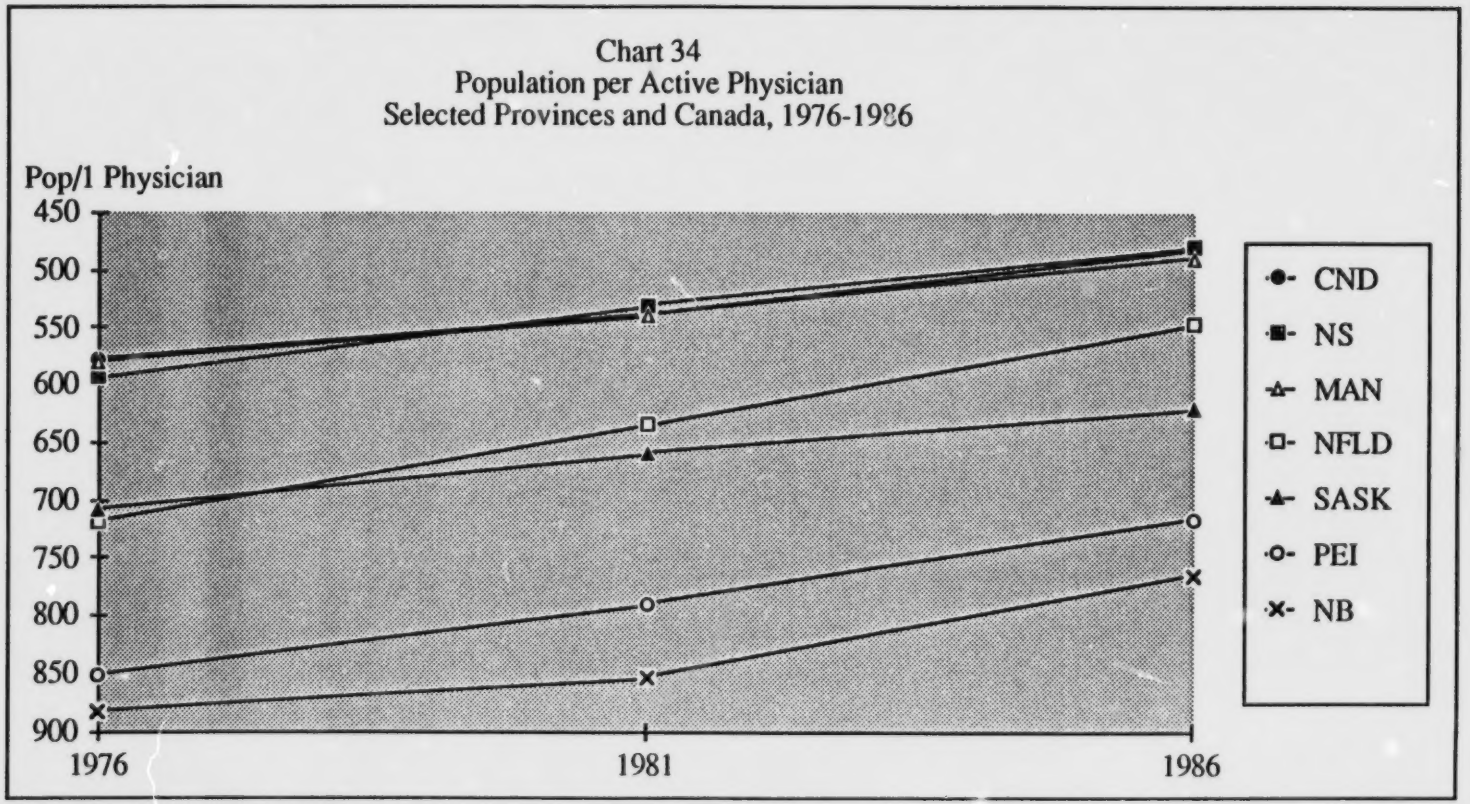
Source: see Table 73

Chart 33
Population per Nurse Registered & Employed
Full-time or Part-time in Nursing
Selected Provinces and Canada, 1976-1986



Source: see Table 74

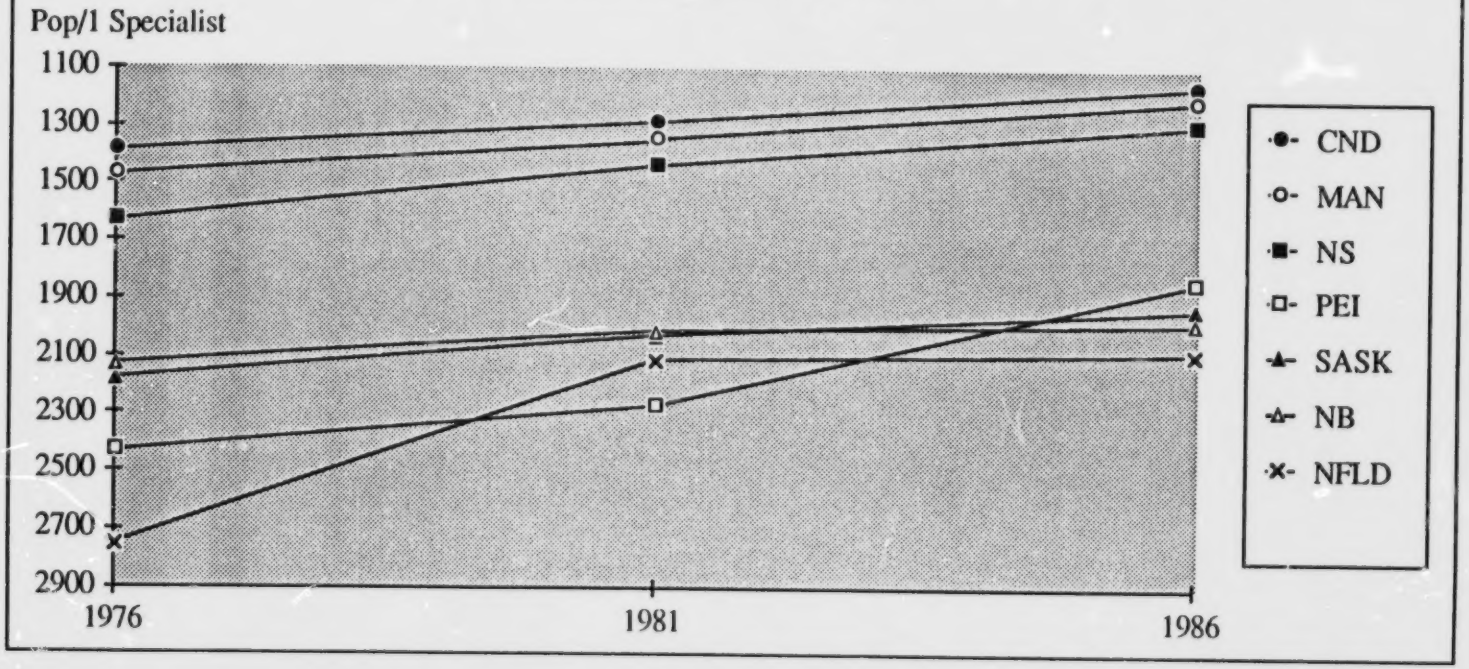
Chart 34
Population per Active Physician
Selected Provinces and Canada, 1976-1986



Including Interns and Residents

Source: see Table 75

Chart 35
Population per Specialist
Selected Provinces and Canada, 1976-1986



Source: see Table 75

V. UTILIZATION OF HEALTH CARE SERVICES

Some of the major indicators of health care services utilization we use are separation rates, occupancy rates, average length of stay, inpatient days per capita, abortion rates, surgical procedure rates, and physician office visits.

Hospital separations per 1,000 population in Canada have been generally declining. This trend is also generally reflected in the six provinces. For both males and females in each province, these rates have been higher than the Canadian average, see Charts 37A-B and Table 77A. Separation rates for the different types of public hospital beds are provided in Table 77B. Public hospitals, as defined by Statistics Canada, are funded by the provincial government under the provincial insurance plan. Other broad categories of hospitals include proprietary (private) and federal hospitals. Within the public hospitals category are beds designated as general, specialty, rehabilitation, extended, psychiatric and nursing stations. General beds are further divided into non-teaching and teaching, while specialty beds include pediatric, psychiatric, and an "other" category. For the six provinces considered in this report, the largest number of separations occurred from non-teaching hospitals. The extremely high separation rates reported for non-teaching hospitals in Prince Edward Island and New Brunswick can be partially explained by there being no recorded separations from teaching hospitals in either province.

At the same time that separation rates have been decreasing, occupancy rates of public hospitals have been increasing. While these rates have remained relatively stable in Nova Scotia and Saskatchewan since 1975, they have increased significantly in Prince Edward Island and New Brunswick, see Chart 38 and Table 78. Occupancy rates have been in the 90% range for extended care and psychiatric hospital beds.

Average length of stay (ALOS) in hospitals has remained relatively constant in Canada; the Canadian average has been noticeably higher than most of the five provinces examined in this study, see Chart 39 and Table 79. Average length of stay rates are sensitive to the types of illnesses being treated (acute or chronic), severity of the illness, intensity of services (related to capital equipment and staff ratios per bed), medical practice, efficiency, and other factors. The highest ALOS in 1986/87 was in New Brunswick, followed by Manitoba, Nova Scotia, Newfoundland, Saskatchewan, and Prince Edward Island. For 1987/88, a marked increase was recorded for Newfoundland beds. the largest decline in ALOS has been recorded by Saskatchewan. As expected, psychiatric rehabilitation and extended care beds have the highest ALOS. Teaching hospitals have a higher ALOS than non-teaching hospitals nationally and in every province studied, but Saskatchewan. As is discussed in the expenditures study, there does appear to be a direct relationship between ALOS and the number of beds per 1,000 population.

The use of hospital beds is shown by the ratio of inpatient-days per capita. In every province except Prince Edward Island, utilization has been decreasing, see Chart 40 and Table 80. The highest ratio existed in New Brunswick, followed by Saskatchewan and Manitoba, Nova Scotia, Prince Edward Island, and Newfoundland. There is a relationship between the number of beds available and their use.

Since legal therapeutic abortions are performed in hospitals, the rate of these procedures also provides some indication of the use of hospital resources. Except for Saskatchewan and Manitoba, the rate of therapeutic abortions (by province of residence) per 1,000 females aged 15 - 44 has remained relatively constant throughout the 1980s, see Chart 41A. In Saskatchewan, this rate has decreased, while in Manitoba, it has increased. The same situation exists when the rate is calculated per 100 live births, see Chart 41B. Regardless of which indicator is considered, Nova Scotia consistently performed the highest rate of therapeutic abortions until 1984, when the rates for Manitoba became similar to those for Nova Scotia. A partial explanation of the high rate in Nova Scotia may be that a high percentage of women in Newfoundland, New Brunswick and Prince Edward Island who have obtained abortions have done so outside their province, see Table 81 and Table 41C.

Information showing utilization of medical services is available via the provincial medical care insurance programs and is put together by Health and Welfare Canada. The data are published only by region, i.e., eastern, central and western, and for total Canada. Unfortunately, to obtain individual provincial data, permission has to be provided to Health and Welfare Canada by the individual province in question. It should be remembered that these data are for services paid on a fee-for-service basis by the provincial plans. In the Eastern region (comprising Newfoundland, Prince Edward Island, Nova Scotia, and New Brunswick), office visits per 1,000 population increased almost 14% from 1980/81 to 1985/86, a rate of growth exceeding the national rate but trailing the rate of growth in the Western region, see Chart 42 and Table 82. Office visits represent the largest proportion of services provided by physicians under the provincial medicare plans.

Another indicator of physician utilization is the rate of surgical procedures performed, particularly in relation to "elective" surgery. There was significant variation in surgical rates among the provinces in 1984/85 for such procedures as Cesarean sections, hysterectomies, gall bladders, appendectomies, hernia repairs, prostatectomies, and tonsillectomies, see Charts 43A-B and Table 83. While not shown in this report, considerable variations have existed in other years as well. The fact that there are variations is the important trend to highlight. One might expect these differences to be related to such factors as uncertainty regarding medical

treatment, differences in the delivery systems, differences in access to care, differences in the supply of providers, or even due to differences in population health status. These factors are discussed in the "health expenditures" study.

Institutionalization rates of the elderly relect the use of non-medical, acute and long term levels of care. Increased demands for various levels of service will result from an aging population, changes in technology (including life sustaining technologies), changes in family structures (including marriage and divorce rates), the role of women and female labour force participation rates, and changes in mortality and morbidity. In 1986, an international study of long term care policies was conducted. Results of this study are reported in Doty, 1988.

While it is interesting and important to compare Canada to other countries, there are problems associated with international comparisons. Differences in "age structures, population density and distribution, cultural attitudes about health and family care, birth and death rates, incidences of morbidity, climate and other environmental factors, industrial and occupational mixes, public and private health insurance coverage, cost-sharing, reimbursement systems, absolute and relative price structures, provision of health-related social services, medical practice patterns and the availability of certain technologies, efficiency and productivity, administrative costs and legal systems," can cause problems in measurement and interpretation, (OECD, 1987, p. 15).

The reported rate of all institutionalization in the more developed, or industrialized nations ranged considerably: from a low of 3.6-4.5% in the Federal Republic of Germany (FRG) to more than double that rate in Sweden (8.7-10.5%) and in The Netherlands (10.9%). Canada reported a total institutionalization rate of 8.7%, see Table 84. When considering the use of medical and non-medical facilities, Canada reported the highest rate of medical institutionalization at 7.1%, with the next highest rate being recorded by FRG at 5.3%. The lowest reported medical rates were Japan (1.4%) and Belgium (2.6%). The non-medical institutionalization rate ranged from 0.5 to 8.0%, in Israel and New Zealand respectively. Canada reported a non-medical institutionalization rate of 1.6%.

Doty (1988) concluded that population characteristics, such as older, more elderly female populations, only partially account for the higher rates of institutionalization reported by some countries. For example, Canada has a younger population than many European countries, yet still has a higher rate of institutionalization. While it was also surmised that institutionalization rates were generally lower in countries where public financing for institutional long term care is available only on a means test basis, it was also noted that it appears that the relationship between government funding and institutional use is mediated by bed supply policy. In other words, "tight bed

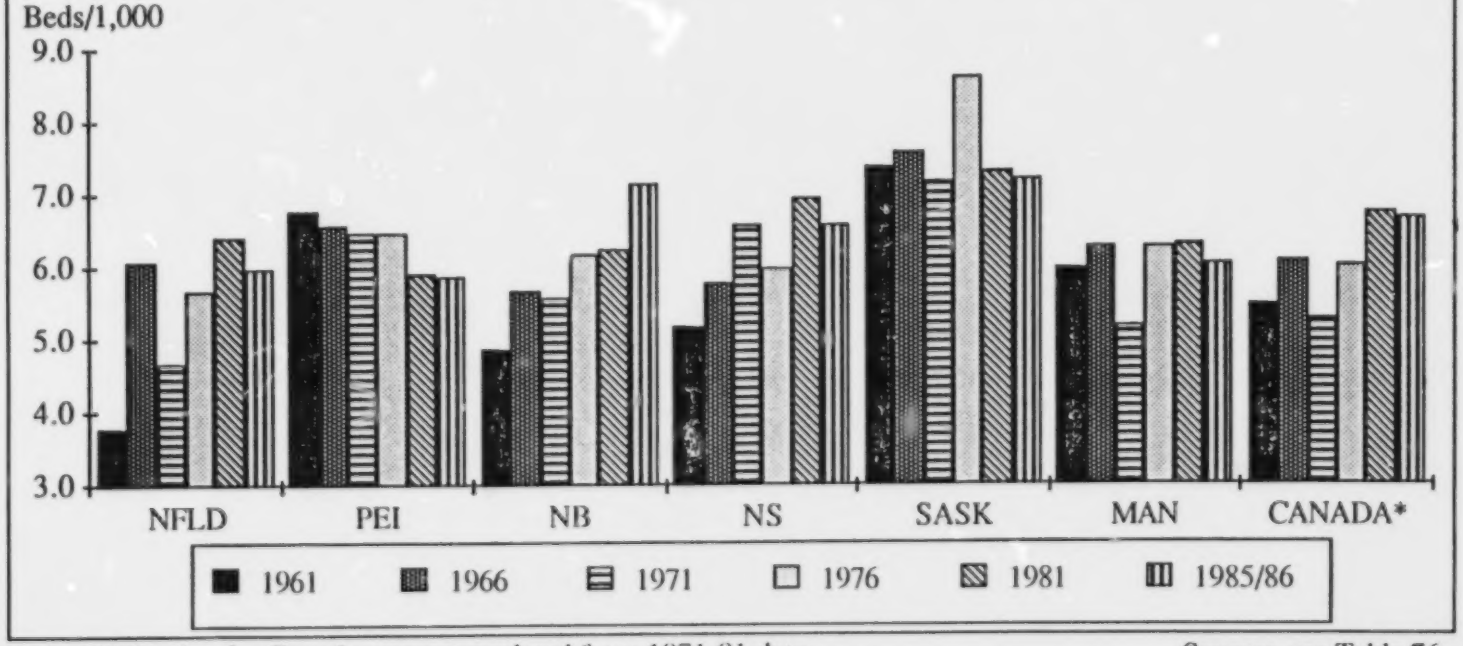
supply controls can curb the use of long term care facilities generously financed by national health insurances, and user rates of more generously supplied facilities are much higher even where public financing is means tested," (Doty, 1988, p. 153-4). It was also noted that there is some evidence, from the Scandinavian countries, that a combined approach of providing home care and sheltered housing can reduce the rate of use of non-medical institutions, particularly when rates have been particularly high. This is in contrast to the finding that policy initiatives aimed at reducing institutional use through increased public funding of home care services alone have not been particularly successful.

Summary: Utilization of Health Care Services

Overall, then, the administrative data which we use to describe utilization of hospital and medical services provide us with some crude, global understanding of the use the population makes of universally insured services. Unfortunately the way the data exist does not allow us to know much about the high user groups in society. Even more importantly, we have little comparable data on the use of non-insured health and other services such as dental care, community health organizations, etc.

A number of studies have indicated that we have ensured access to necessary hospital and medical services. Yet, this equality of access has not done much to reduce the inequalities in health status. Also, not well documented are the numerous non-financial barriers to access, i.e., opportunity costs, which may be preventing the kind of access originally envisaged with universal health care insurance in Canada.

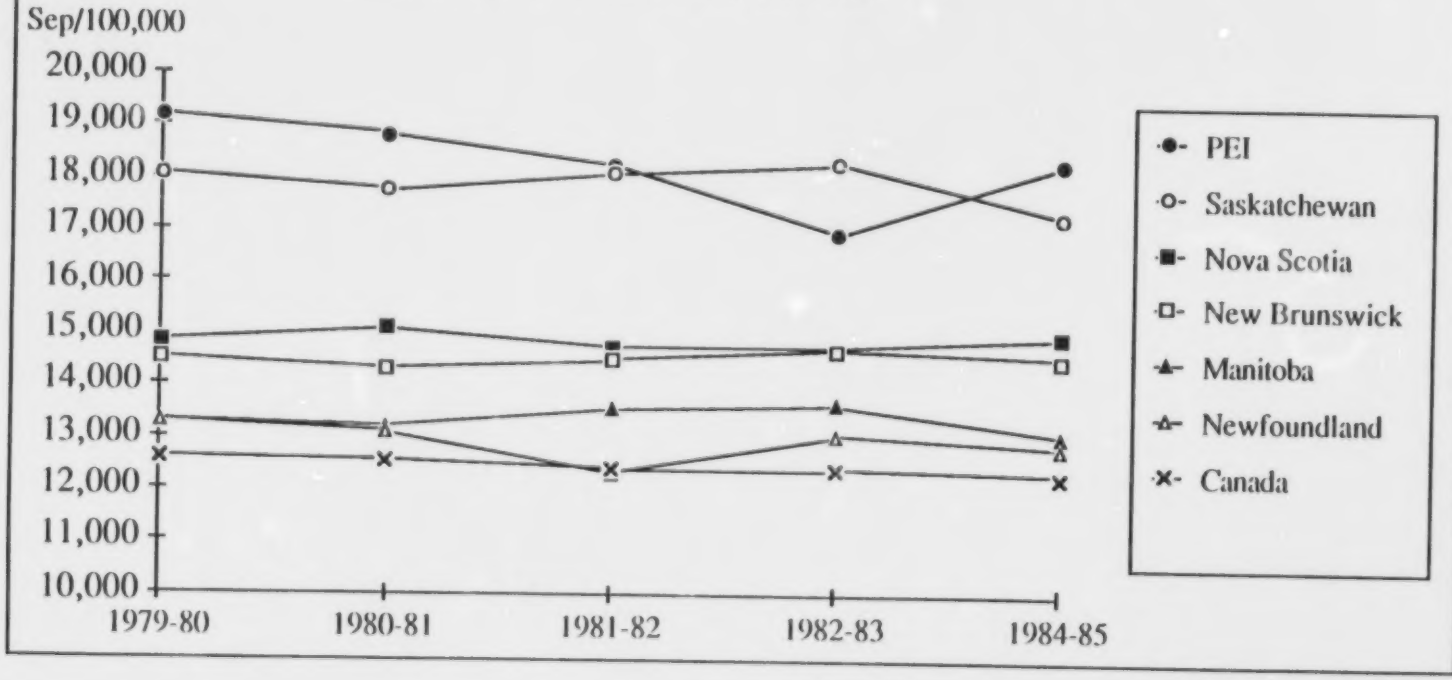
Chart 36
Public Beds per 1,000 Population
Selected Provinces and Canada, 1961-1985/6



* the 1976 value for Canada was extrapolated from 1971-81 data.

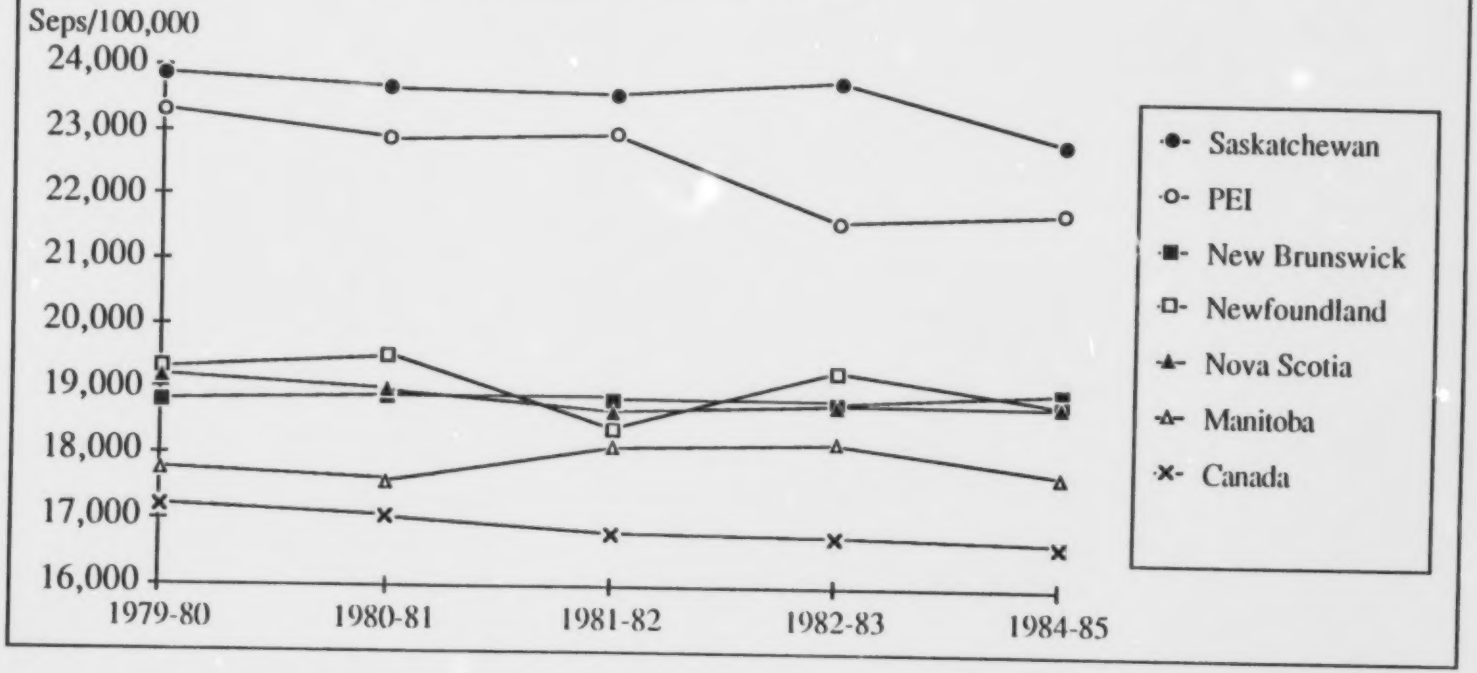
Source: see Table 76

Chart 37A
Separations per 100,000 Males
Selected Provinces and Canada, 1979-1984



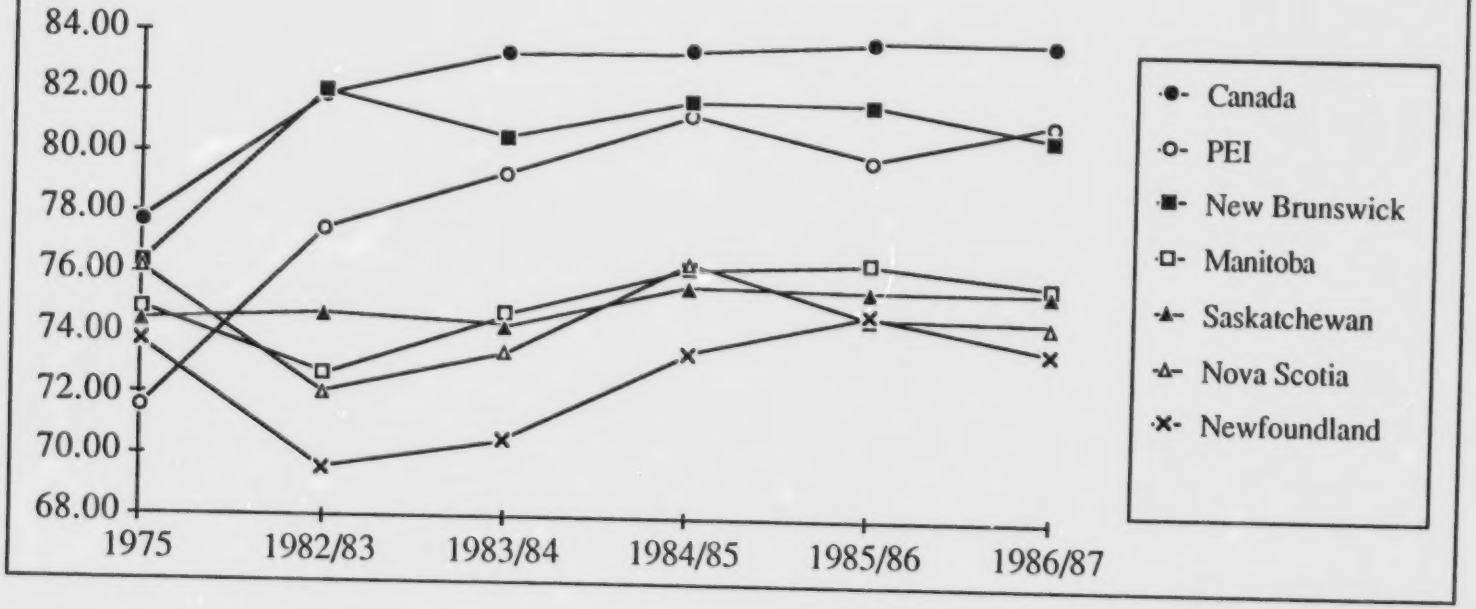
Source: see Table 77

Chart 37B
Separations per 100,000 Females
Selected Provinces and Canada, 1979-1984



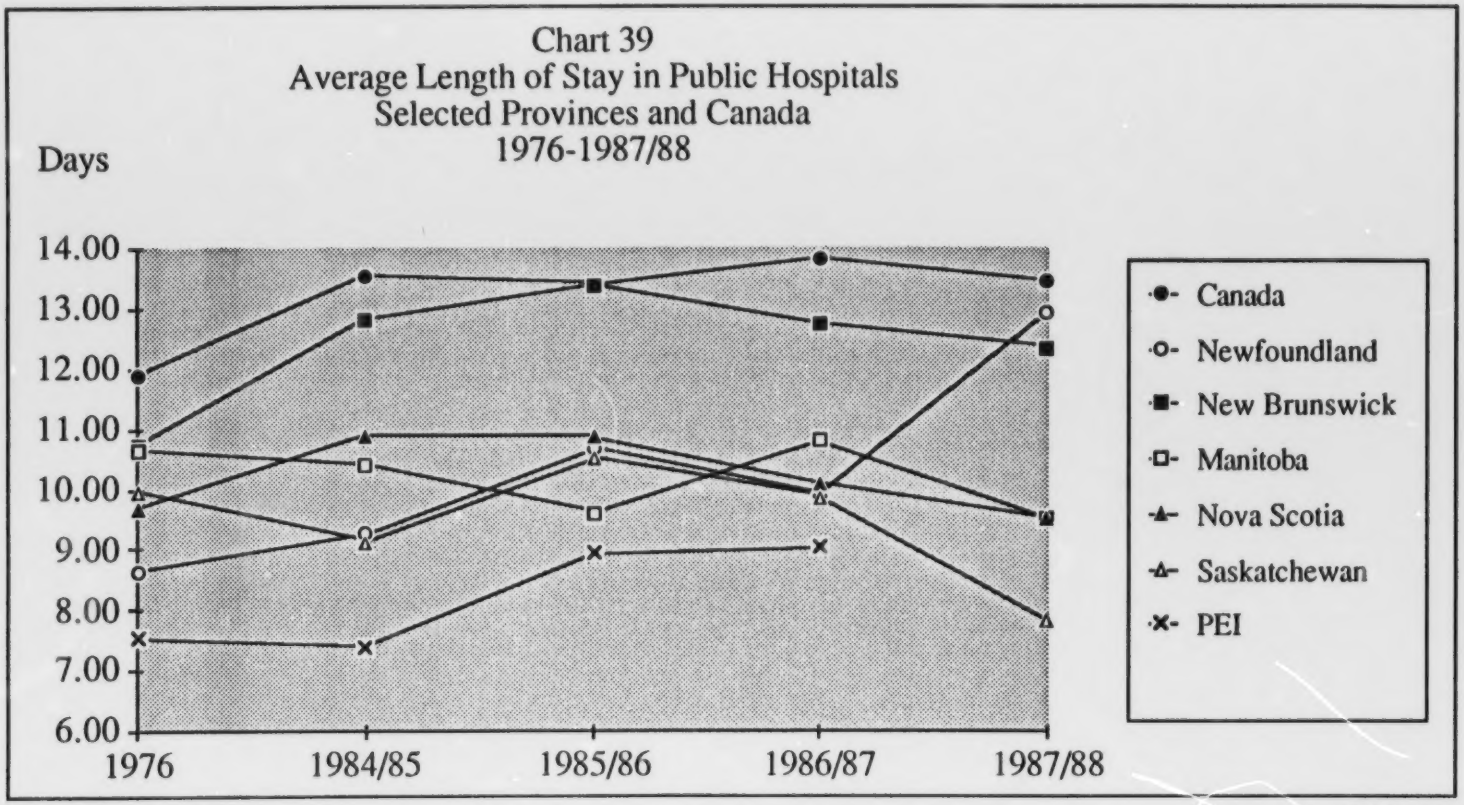
Source: see Table 77

Chart 38
Occupancy Rates of Public Hospitals
Selected Provinces and Canada
Selected Years, 1975-1986/7



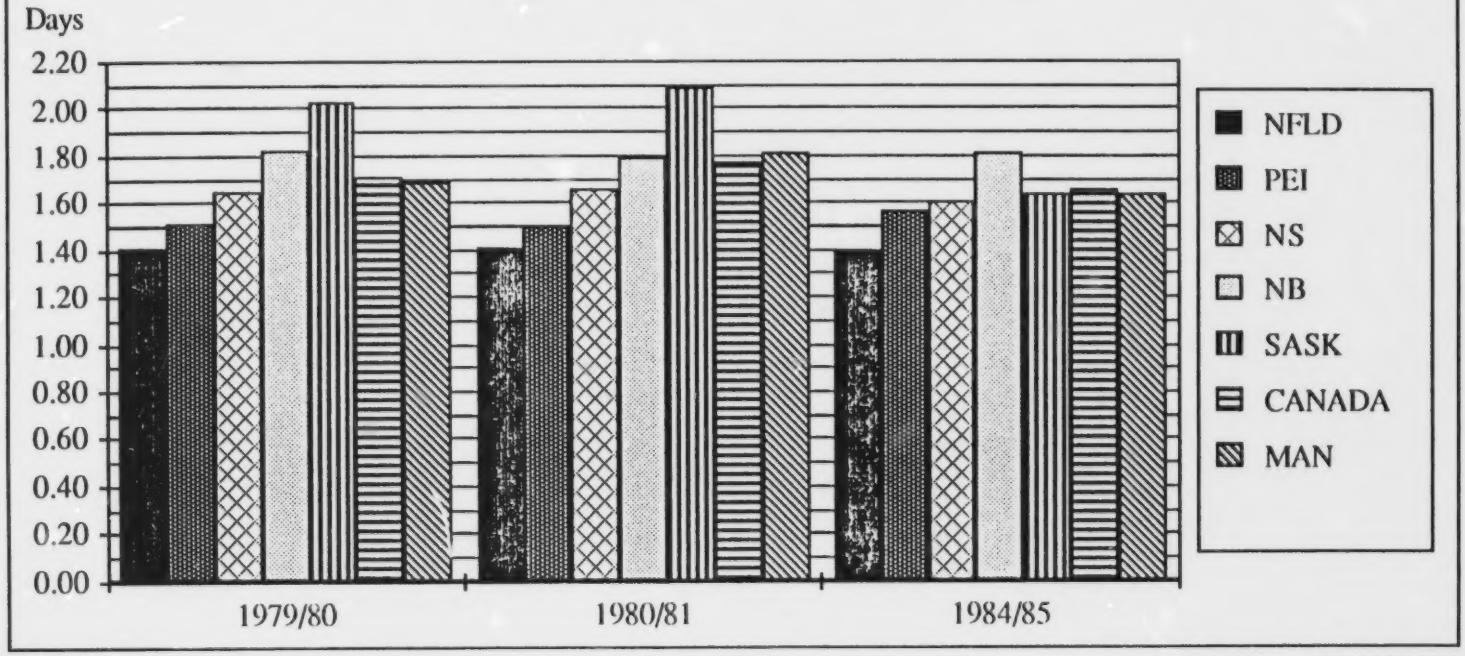
Source: see Table 78

Chart 39
Average Length of Stay in Public Hospitals
Selected Provinces and Canada
1976-1987/88



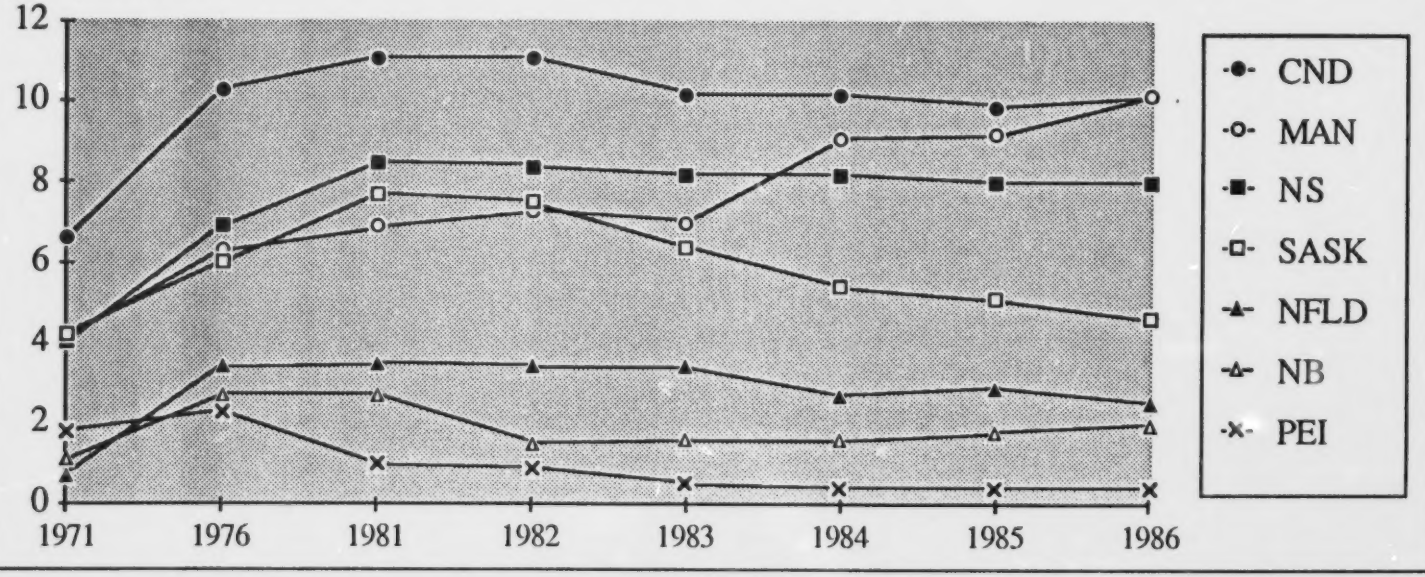
Source: see Table 79

Chart 40
Inpatient Days per Capita
Selected Provinces and Canada, 1979/80, 1980/81 and 1984/85



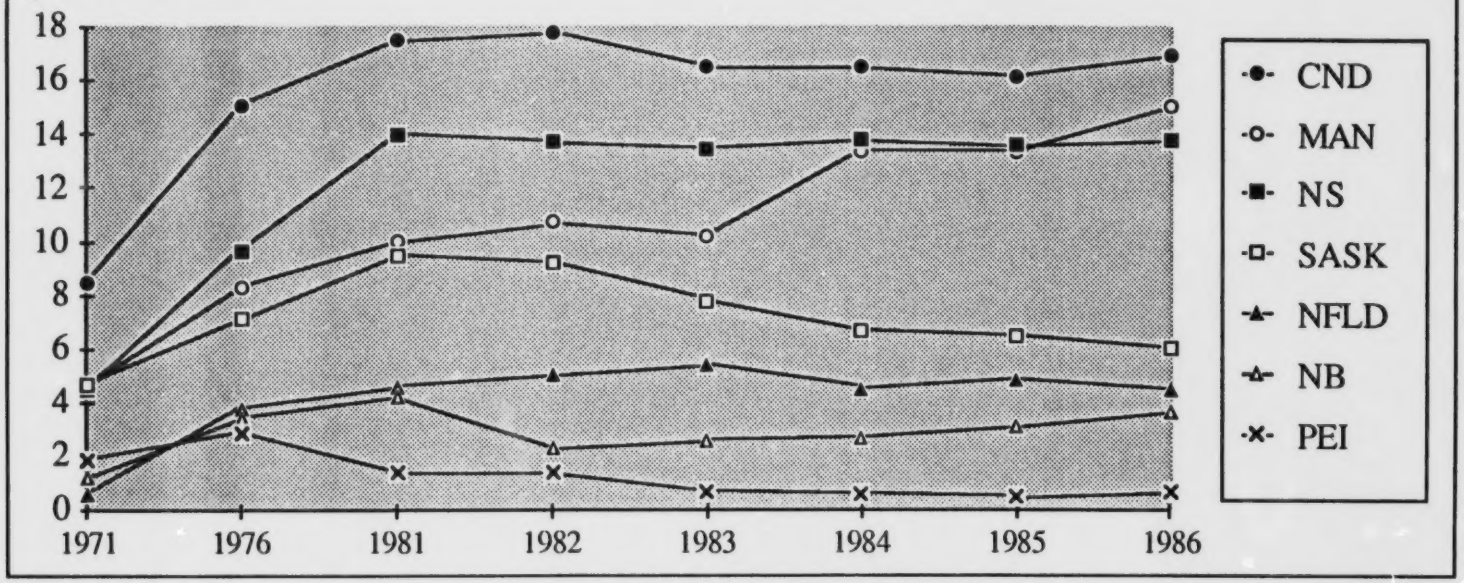
Source: see Table 80

Chart 41A
Therapeutic Abortions by Province of Residence
Per 1,000 Females Aged 15-44
Selected Provinces and Canada, 1971-1986



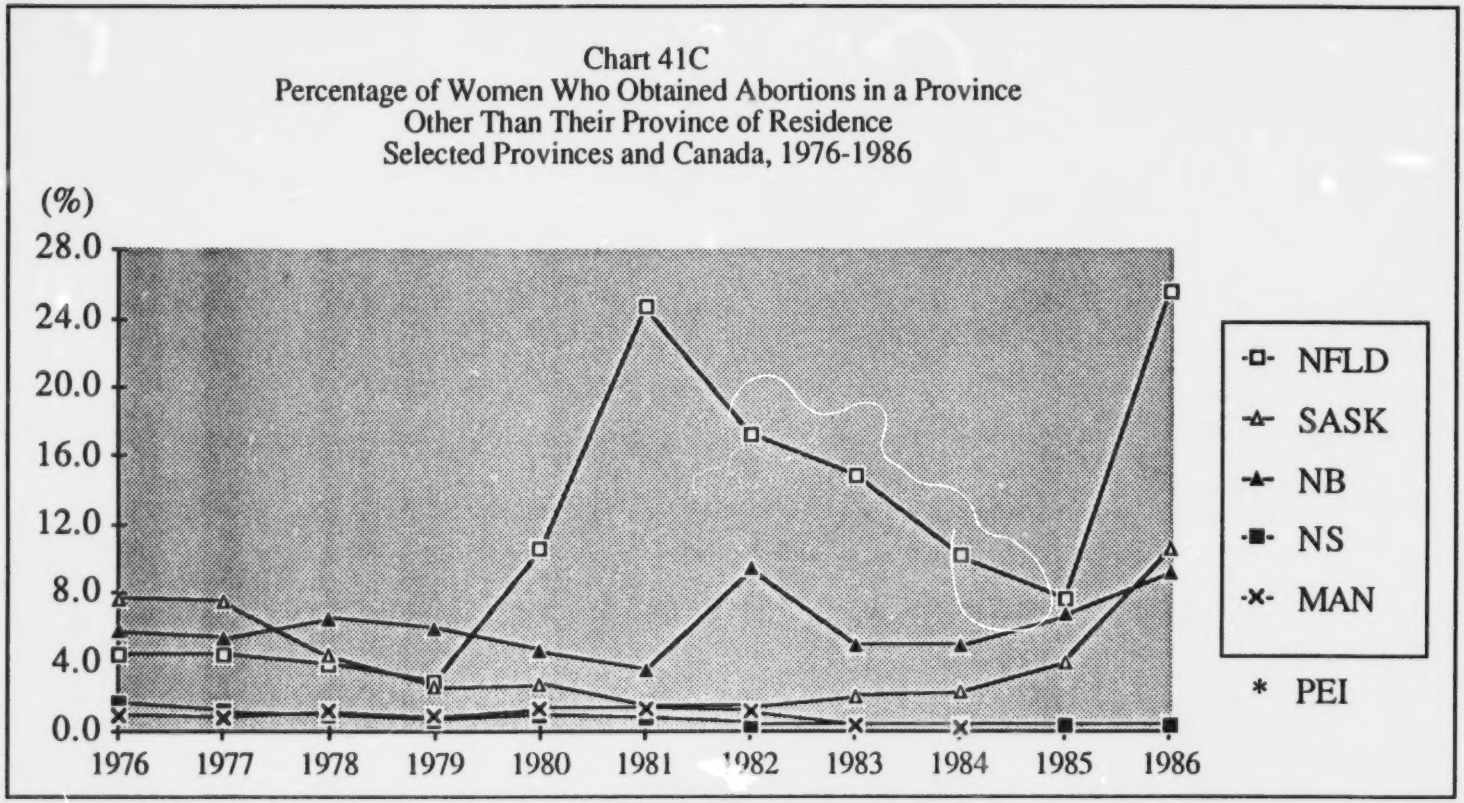
Source: see Table 81

Chart 41B
Rate of Therapeutic Abortions by Province of Residence
Per 100 Live Births
Selected Provinces and Canada, 1971-1986



Source: see Table 81

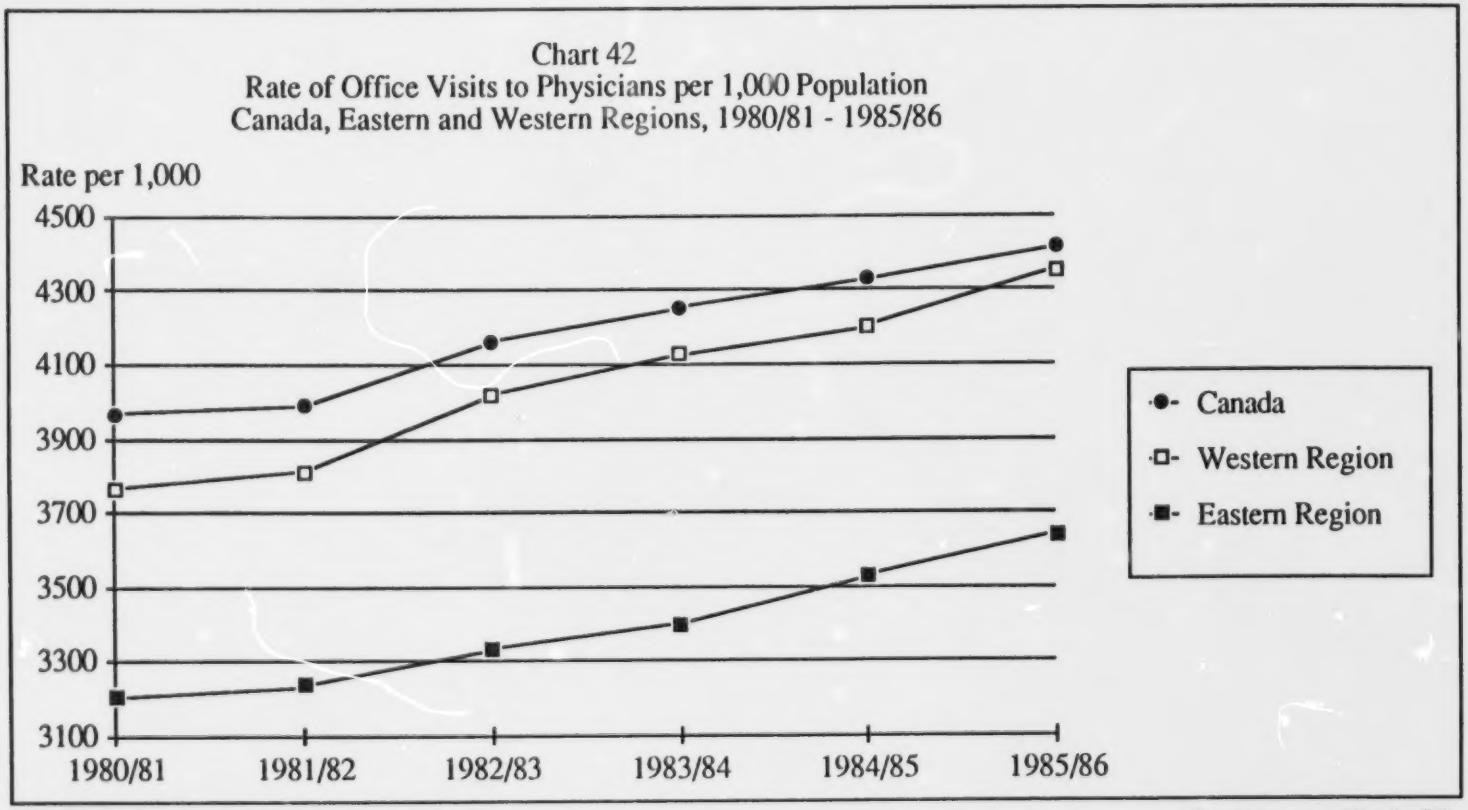
Chart 41C
Percentage of Women Who Obtained Abortions in a Province
Other Than Their Province of Residence
Selected Provinces and Canada, 1976-1986



* Since 1993, all women in PEI who have obtained an abortion have done so outside their province, i.e. 100%.

Source: see Table 81

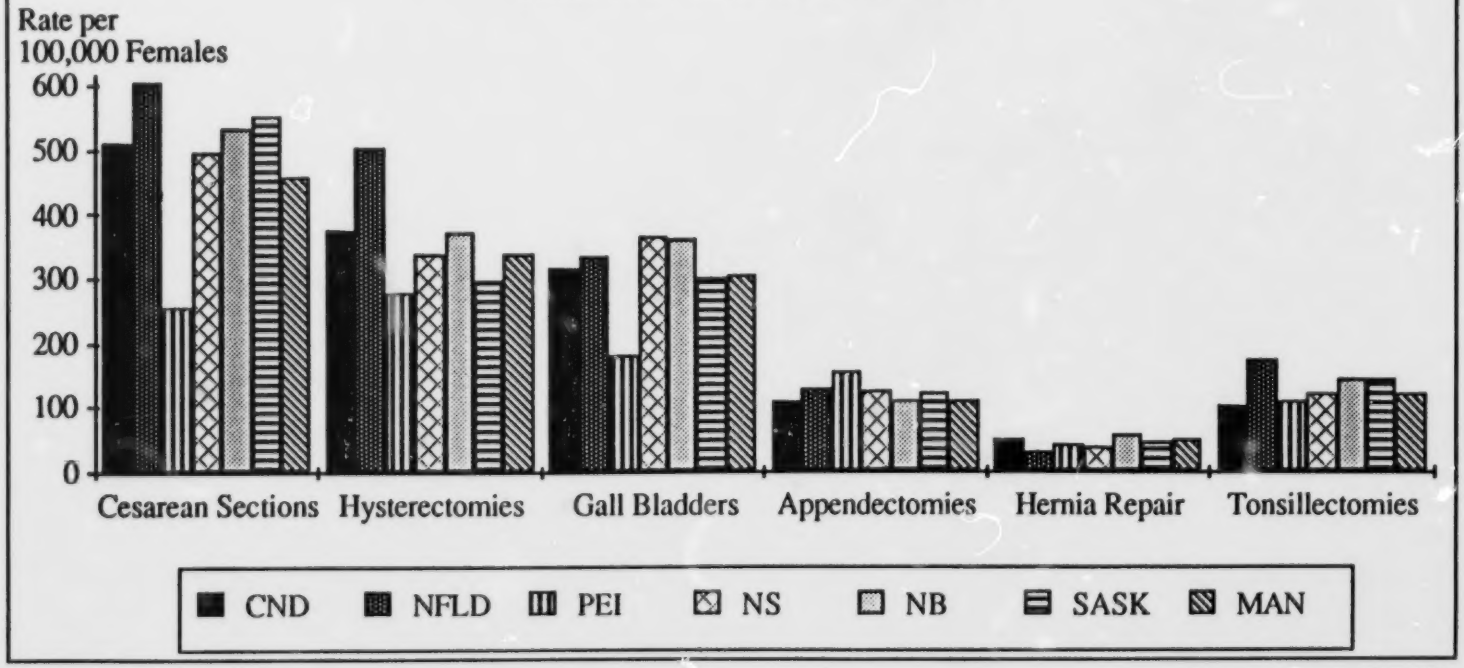
Chart 42
Rate of Office Visits to Physicians per 1,000 Population
Canada, Eastern and Western Regions, 1980/81 - 1985/86



Western Region: Man, Sask, Alta, B.C.
Eastern Region: Nfld, PEI, NS, NB.

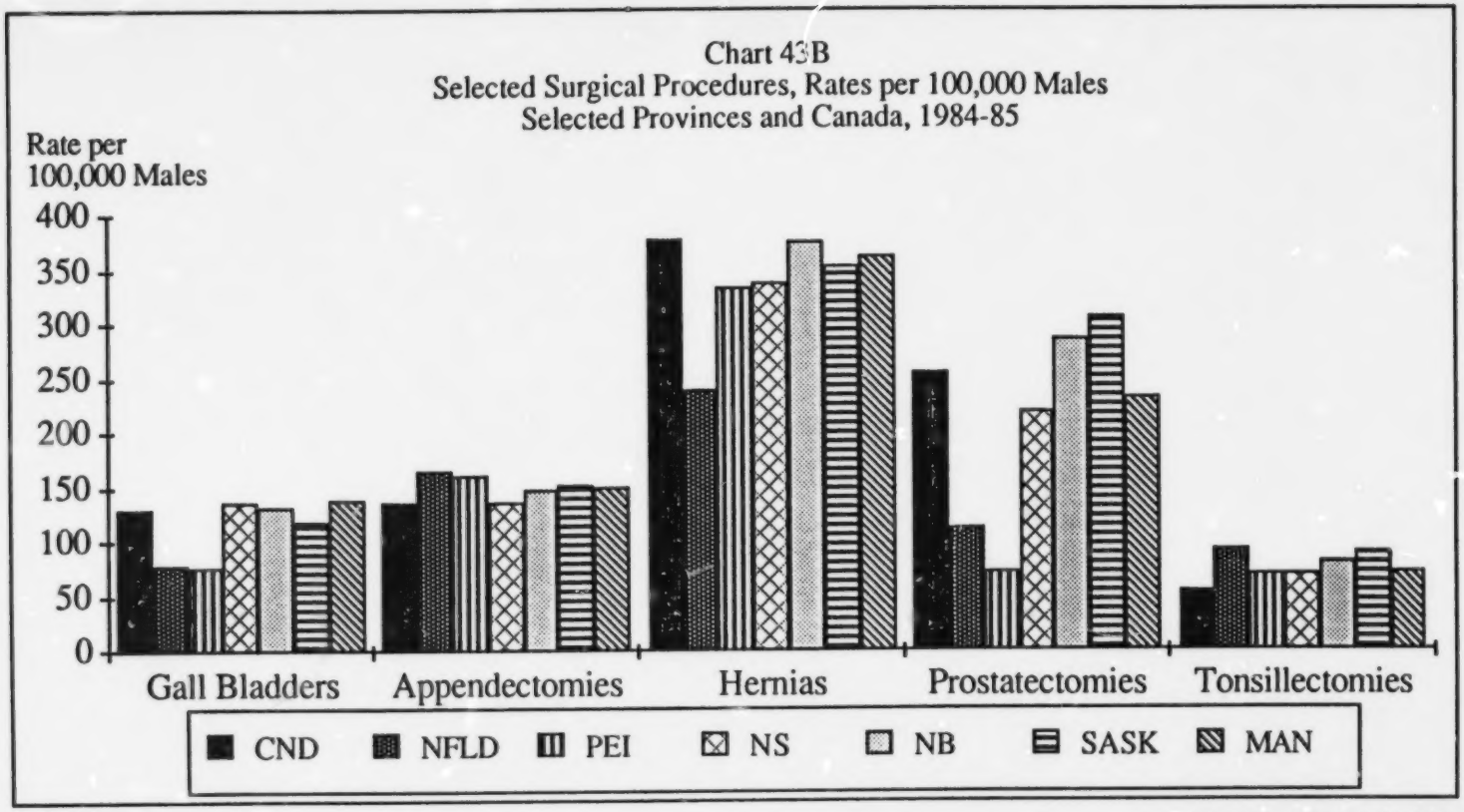
Source: see Table 82

Chart 43A
Selected Surgical Procedures, Rates per 100,000 Females
Selected Provinces and Canada, 1984-85



Source: see Table 83

Chart 43B
Selected Surgical Procedures, Rates per 100,000 Males
Selected Provinces and Canada, 1984-85



Source: see Table 83

VI. SUMMARY AND RECOMMENDATIONS

This report has outlined our current understanding of demographic trends, health status indicators, and delivery and utilization parameters in Nova Scotia relative to the other Atlantic provinces and other provinces in Canada. To plan appropriately and effectively for the future, Nova Scotian policy makers will need to make intentional and concerted efforts to obtain additional information, support innovative programs and initiate research in the areas affecting health care in Nova Scotia.

The key issues raised by the information provided in this report are summarized below. Missing indicators are then identified, followed by a list of related recommendations for each of the major areas of population, health status, delivery and utilization of health care services.

A key issue which affects all areas of the health care system is the lack of measurable and attainable goals, objectives and strategies, both nationally and provincially. Goals are needed to indicate the direction the health system should be heading in the future. Objectives, which can be measured and are attained within a given time frame, are needed to measure the progress being made in reaching these goals. Strategies are needed to realize the objectives and goals. Setting goals at the provincial level allows a common vision to be shared. Priorizing these goals and setting objectives at the regional level allows the differences in regional needs to be recognized and encourages local and individual ownership of the process of health planning and delivery. Devising strategies at the provincial, regional and local levels can maximize resources and can facilitate the development of tools and vehicles appropriate for the intended "targeted" population. Such endeavours have been successfully undertaken in the United States through the 1990 Health Objectives for the Nation program[5] and are being initiated in Quebec, Alberta and Ontario.[6] Political will has been the cornerstone of each of these endeavours. Therefore, it is recommended that:

1. Nova Scotia undertake to establish a set of measurable and attainable objectives, goals and strategies for the health of its residents. This recommendation should be a high priority and can occur in the medium term.

Issues and recommendations specific to a particular aspect of the health care system are presented below. By addressing these issues and gaps in knowledge, it will be possible to more accurately determine the health status

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[5] U.S. Department of Health and Human Services (1986), "The 1990 Health Objectives for the Nation: A Midcourse Review," Washington: Public Services.

[6] Spasoff, R.A. (1987), "Health Goals for Ontario: Report of the Panel on Health Goals for Ontario", Toronto: Ministry of Health.

of the population served by the Nova Scotian health system, assess the appropriateness, effectiveness and efficiency of this system, and meet the challenges of the future.

Population and Demographics

The trends in life expectancies for males and females, the increasing proportion of senior citizens, the continued decline in fertility rates, marriage and divorce rates, the proportion of lone-parent families, the living arrangements of seniors, the increasing labour force participation rates for females, and other socio-demographic factors will likely have major implications for the types of health and social services needed in the future. It is important to realize that these demographic changes will affect more than the health care sector. Demands for funding and programs will come from *all* areas of the social envelope -- employment, education, pensions, social support, housing *and* health care. It is unlikely that provincial governments will be able to meet all of the demands placed on them from these areas.

For planning purposes we really do not require major improvements on the demographic information derived from various sources at Statistics Canada. There is, nonetheless, a problem with the timeliness of some of significant vital statistics, namely, marriage and divorce data. In most cases the problems originate with the provinces which may not have sufficient resources and/or time to process the information and to send it to Statistics Canada. As well, part of the responsibility lies with the latter agency. Therefore, it is recommended that Nova Scotia:

2. Make every effort to ensure that health care planning occur within a multidisciplinary context, including information and representation from the fields of employment, housing, education, finance, social services, and other fields which may impact on the health of the people being served.

3. With Statistics Canada, work on enhancing the timeliness of existing data.

Health Status

With respect to health status, it appears that Nova Scotians are not as well off as elsewhere in the country. Of the six provinces examined in this study, Nova Scotia has the lowest life expectancy at birth. Death rates are relatively high, as well. Nova Scotia has the second highest death rates due to heart disease for women, and the highest rate for cancer in men. The rate of

premature deaths is also very high in Nova Scotia: many of the causes of these deaths due to heart disease, car accidents, suicide, lung cancer, and breast cancer are related to lifestyle behaviours and to the environment. Population-based disability data also show that the rates of disability are higher in Nova Scotia than they are at the national level. Finally, the cumulative death rate per million population for AIDS, which is already higher in Nova Scotia than in the other provinces, is projected to continue to climb.

With death rates due to heart disease at such high levels as they are in Nova Scotia, it seems particularly important to place attention on those who are at risk of cardiovascular disease. Nova Scotia has a high risk population. It has the highest proportion of female smokers, and a higher average weekly consumption of alcohol than in the other provinces considered in this report. Furthermore, there appears to be less knowledge and practice of some basic female preventive health practices, e.g., PAP smears and breast self-examination (BSE), in Nova Scotia than elsewhere.

A very important group to target with respect to risky lifestyle behaviours are children under age 15. There are high proportions of children in Nova Scotia who are more-than-casual smokers, drinkers, users of illegal drugs, and who are overweight. Inattention to these areas will likely result in more severe health problems at later stages of these young people's life cycles, and quite possibly, increased strains on the future health care system.

Based on the beliefs, attitudes and behaviours of many Nova Scotians with respect to hypertension, nutrition and use of seatbelts, the potential to change adverse health practices may be reasonably high.

Major deficiencies exist regarding health status data. Even with respect to life expectancy estimates, a significant problem for this study was the timeliness factor: the latest provincial estimates for life expectancy at birth data were for 1980 - 82.

Another important difficulty with the traditional "Health Status" indicators is that their basis is in the medical model in which health is regarded as the absence of disease. Here the frequently used indicators are life expectancy (as noted above), mortality rates, potential years of life lost (PYLL), causes of hospitalization, and rates of infectious diseases. As we now realize, these indicators do not adequately reflect many of the health problems today. More and more evidence is making it difficult to suggest that many heart diseases, cancers, accidents, respiratory diseases, suicides, etc., are caused solely by abnormalities in pathological function. Health status indicators are needed which show more clearly the relationship which lifestyle behaviours and conditions in the environment have on "health". It is not enough to know that people are dying of heart disease; we must also know something about

the predetermining variables in order to develop effective programs to deal with the potential causes.

As is discussed in another study[7], with appropriate population-based activity limitation and disability data, which are technically easy to obtain via health status surveys, policy analysts could link life expectancy estimates and mortality data to activity limitation and disability statistics to derive indicators of expected years of healthy life and of disability. An analysis which takes into account both the causes of death and causes of disability will allow policy makers to zero in on the health problems which have the most significant impact on overall health expectancy, including loss of functional ability as well as loss of life.[8]

It has taken awhile, but more and more jurisdictions (both provincially and locally) are beginning to recognize the need for population-based health status information. Existing mortality and institutional morbidity data provide insights into only one aspect of health; much happens to individuals between the stages of "good health" and the onset of conditions which are serious enough to require hospitalization or to result in death. Perhaps expenditures on health care could be used more effectively in those areas prior to hospitalization and/or premature death.

Finally, with respect to health status indicators, an area which requires significant improvement is mental health. Already, mental disorders account for a significant proportion of hospital use. It is envisaged that mental health will become more and more of an issue during the coming years and, much like the realizations vis-à-vis physical health, it has to be considered more broadly than the "absence of disease". The data and indicators will have to show the factors which have an association to such common, but costly, outcomes as alcoholism and suicide.

Given the nature of the significant causes of death, especially the premature mortality, as well as the apparent high risk behaviours of various segments of the population, Nova Scotia likely would want to develop appropriate health care policies to deal with these problems. Therefore, it is recommended that Nova Scotia:

4. Undertake to improve data in the following areas:

i. population-based health status data to identify needs of the population prior to requiring institutionally-based services;

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[7] Angus, D.E., P. Manga, K. Tregunna (1989), "Inter-provincial Comparisons of Health Expenditures", for the Nova Scotia Royal Commission on Health Care.

[8] This approach has been shown quite clearly in Wilkins, R. and O.B. Adams (1983), "Healthfulness of Life," Montreal: Institute for Research on Public Policy.

ii. determinants of the leading causes of mortality and morbidity, (particularly related to the leading causes of death, hospitalization, and disability) including studies of the relationship with lifestyles, behaviour, the environment, and genetic factors;

iii. population-based activity limitation and disability data to determine expected years of healthy or disability-free years;

iv. identification of high risk groups so that information can be targeted to these groups using appropriate vehicles and tools;

v. mental health data including population-based data and existing administrative data on mental disorders and mental health problems.

Whether or not goals, objectives and strategies are developed, this information is needed sooner, rather than later, for effective planning.

Very often it is suggested that the reason we attempt to rely on the existing morbidity and mortality data to provide us with the appropriate indicators of health status is related to cost. Yet, if these existing statistics are insufficient for appropriate assessments and decisions, then there is a cost in this regard as well. In Canada, we spend relatively few resources on research and even less on the collection, analysis and dissemination of information. As was pointed out in the report of the Panel on Health Goals for Ontario[9] , the cost of undertaking a population-based sample health status survey every three years in Ontario, which would be very useful for health planning and decision making, is roughly the equivalent to the cost of maintaining one acute-care bed in a teaching hospital over the same period of time. When considered in these terms, the cost of obtaining valuable information is not all that expensive, and must be balanced against the cost of not obtaining this information.

Delivery of Health Care Services

Of the Atlantic provinces, Nova Scotia spends the highest per capita amount on health services; Nova Scotia is third, after Saskatchewan and Manitoba in terms of the provinces examined in this report. Health care expenditures in Nova Scotia consumed almost 11% of GDP. While the proportion of health

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[9] Spasoff, R.A. (1987), "Health Goals for Ontario: Report of the Panel on Goals for Ontario," Toronto: Ministry of Health.

care costs going for hospitals has declined noticeably in Canada during the last decade, the decrease has been less significant in Nova Scotia. Some provinces, notably Manitoba, Prince Edward Island, Saskatchewan and New Brunswick, appear to be "shifting" spending from hospitals to "other institutions". Also of interest are the increases in drug expenditures and decreases in capital expenditures.

Compared to the other provinces, Nova Scotia has a substantial supply of health professionals. Both the physician-population and nurse-population ratios were the highest of the six provinces. Only Manitoba has a higher specialist-population ratio. The supply of public hospital beds has declined. If the shift from hospitals to other institutions continues, there may be a further lowering of the ratio of public hospital beds per population.

For the hospital environment, a challenging development that looms on the horizon is the adjustments which may be required as the supply of physicians continues to expand and the supposed shortages of nurses persist.

With respect to health care delivery, there is much information we do not have. For one thing, we do not have current data on provincial health care expenditures. Another major problem is that the health expenditures information does not relate directly to illness conditions and health outcomes. Hence, as explained in the "health expenditures" study, we have no meaningful way to relate health spending to effectiveness or efficiency.

While we have reasonably good information on the numbers and types of health care professionals, we are missing indicators which relate to the functional aspects of health personnel. For instance, we know the profile of physicians by what they are *certified* to do, but we have virtually no idea what they *really* do. Hence, we cannot discern real from perceived needs. Also, we know the numbers and types of nursing personnel, but again, we have little way of determining their actual activities. Much the same can be said regarding other health professionals as well. Obtaining information on what health professionals do would provide us with a better understanding of each provider's role in the treatment of health care problems. Health profession/population ratios are inadequate measures of intensity of service, yet intensity of service and utilization are important factors in expenditure patterns. It seems that we are many years away in Canada from a comprehensive health manpower policy and planning approach.

An incredibly large gap exists in the area of health care technology, interpreted in its broadest sense, i.e. the drugs, devices, and medical and surgical procedures used in health care, and the organizational and supportive systems within which such care is provided. As a result of the rapid onset of new and more daring innovations, as well as the proliferation of the common "low tech" tests and procedures, and the concurrent pressure

on health care costs, it is becoming more and more important for policy makers to evaluate the medical, economic, and social costs and benefits of technology in the health care sector.

In the usual industrial setting, labour and capital are combined in such a way as to produce an agreed-upon set of goods and services as efficiently as possible, the obvious goal being to maximize revenues, sales, or profits. A significant difficulty in the health care "industry" in Canada is that we have not explicitly delineated the final "goods or services" we are trying to produce with the available health manpower, buildings, and equipment. Until such time that measurable health objectives and outcomes are specified, it will continue to be difficult to try to determine the appropriate "mix" of labour and capital. Instead of attempting to plan in terms of intermediate inputs (i.e., manpower and equipment, etc.) and expenditures, we have to think in terms of real final outputs. It is almost meaningless to talk about "appropriate" manpower-population ratios, or percentage of GDP spending on health care in the absence of such health status outcome objectives.

Some provinces already have set endeavours in motion to create goals, objectives and strategies for health and social spending. One would expect that these undertakings will allow them to examine the contributions which existing delivery modes, as well as possible alternatives, could make towards realizing those goals. This should also help in trying to determine appropriate spending levels and mixes of health professionals and technology.[10]

From a health planning perspective, there is a tendency to view the aging population with despair, however, an OECD report concludes that "given adequate growth in productivity and employment, the aggregate economic burden need not prove insuperable. But it could require significant reallocation of resources from other competing goals and a political willingness to provide the mechanisms which will accommodate such a shift in priorities," (OECD, 1987, p. 91).

Based on the current measures of health care delivery and the identified gaps in knowledge, it is recommended that Nova Scotia:

5. Evaluate existing modes of delivery and, based on needs, develop and evaluate alternate modes of delivery and, as warranted, shift resources, e.g. to satellite or free standing facilities, community-based options, mutual care, self care, and/or less traditional modalities such as holistic

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[10] At the present time, the Canadian Hospital Association is doing a national Delphi-type study for the Canadian Occupational Projection System (COPS) of Employment and Immigration Canada, the focus of which is the impact of technological change on human resources in the health care sector. The results of this study should be available in 1990.

medicine, midwifery, etc. Evaluations should be ongoing and should include both process and outcome measures.

6. Establish outcome and appropriateness measures. Multi-disciplinary committees could be established to develop standards in important areas such as of outcomes, appropriate medical and surgical practices and procedures, and hospital utilization. Over time, other areas may be added. This could be accomplished through the government initiating discussions among hospitals, organized medicine and the academic community

7. Consider the development and implementation of extensive health promotion and prevention programs.

8. Collect data which reflects what providers actually *do* as well as what they are *trained* to do, i.e. the actual responsibilities and functions of the various health and allied health providers.

9. Facilitate the ongoing education of health care providers by gathering and disseminating information regarding the cost consequences of their decisions and actions.

10. Collect and disseminate data which will inform policy makers and providers of the implications and effects of technology on health status of the population and on the health care system. This would include a consideration of costs, appropriateness, effectiveness, efficiency and ethics. Nova Scotia may do this alone, with other provinces, and/or with a federal body.

Specific recommendations concerning health care expenditures can be found in the companion reports of this series, namely "Fiscal Federalism from the Perspective of Nova Scotia" and "Inter-Provincial Comparison of Health Care Expenditures."

Utilization

As was noted in the health status section, use of health care services may be determined by medical needs. Utilization may also be a factor of the availability of services and facilities, decisions whether or not to seek treatment, and the decisions of providers regarding the need for subsequent visits and/or hospitalization and the length of time required for hospitalization. With all these elements to consider, it is difficult to determine with much certainty whether or not actual utilization patterns reflect health status needs. One thing we know for certain is that bed

availability is related directly to bed use: the resource utilization implications of this relationship are quite clear.

In the area of utilization, basically the only data which exist are derived from the institutional morbidity data files and the medicare insurance systems. Timeliness is a critical deficiency, especially with respect to the hospital morbidity data. Lack of accessibility to the medical services data by province renders their utility for analysis adversely. Aside from the major insured health care services, we have virtually no idea how much use is made of ambulatory care services, pharmacists, dentists, other less traditional personnel, etc. Even within the existing delivery modes (hospitals and physicians' offices), we cannot determine the socio-demographic-economic-health profile of the user population. As we know, as long as the existing institutional morbidity data continue to provide information only on cases, as opposed to individuals, in a hospital during a given year, we will continue to experience difficulties in understanding true utilization in the system. Again, as with the health status area, there is a real need for population-based information on this aspect as well. Finally, the information we have on utilization reflects primarily the use of acute-care, curative services; what about use of preventive services?

Based on these observations, it is recommended that Nova Scotia:

11. Collect data regarding the use of non-insured services, community-based services and allied health services.

12. Study and improve the elements of accessibility, including factors related to economics, ethnicity, education, the physical environment, and other determinants of accessibility.

13. Develop cost and utilization data which relate to individual *patients* as opposed to *cases*, the result being information related to the socio-demographic and health status profiles of the population who are high users of hospital and medical services. This information could be used to develop, target and priorize the delivery of necessary services.

Conclusion

Our health care system, in its present structure, is a few decades old. Recall that is was designed to deal with acute, short-term medical care needs, illness and injuries. Yet, as we tried to show earlier, the health care problems and needs of the population in Nova Scotia and elsewhere in Canada seem to have changed much more dramatically than the system. More and more of present health problems are now gradual in onset, disabling in nature, and

long-term in duration. Disabilities will increase significantly as the population continues to age. It also seems apparent that the existing system is ill-equipped to deal effectively with these problems.

Many health problems need to be treated by a range of health professionals and agencies in both community and institutional settings, e.g., home care, nursing homes, specialized programs for the disabled mentally ill, and those with special problems, dental services, pharmacare, etc.

Looking to the future, it is recommended that Nova Scotia:

14. Undertake to develop longer-run system changes which would result in a set of alternatives which would appropriately, effectively, and efficiently address the health problems in Nova Scotia, now and in the future.

As the health and related conditions and needs of the population have changed, so have the requirements for data, information, programs and services related to these changes. The development of effective ways to respond to these changes represents, perhaps, the major challenge facing health care policy makers in Nova Scotia.

APPENDIX A

SUPPORTING TABLES

Table 1A
Population Estimates
by Age and Sex
Canada, 1961-1987

(Population in Thousands)

	1961	1966	1971	1976	1981	1986	1987
				Male			
0-14	3166.1	3372.8	3263.5	3020.0	2811.4	2765.3	2780.4
15-24	1316.2	1656.1	2016.2	2261.8	2356.2	2116.7	2085.1
25-44	2449.4	2524.5	2741.4	3138.1	3602.3	4070.7	4173.9
45-64	1613.1	1784.4	1986.4	2154.2	2287.0	2400.2	2430.6
65+	674.1	716.6	781.9	875.4	1010.7	1133.3	1171.1
Total Population	9218.9	10054.4	10789.4	11449.5	12067.6	12486.2	12641.1
				Female			
0-14	3025.8	3218.9	3117.4	2876.2	2670.2	2627.3	2643.0
15-24	1300.0	1642.9	1987.5	2217.3	2302.3	2061.5	2019.4
25-44	2421.6	2502.2	2668.5	3079.4	3580.9	4097.3	4202.0
45-64	1554.9	1773.5	2036.9	2243.2	2370.8	2473.3	2498.1
65+	717.1	823.0	962.0	1126.9	1349.9	1564.2	1621.6
Total Population	9019.4	9960.5	10772.3	11543.0	12274.1	12823.6	12984.1
				Total Population			
0-14	6191.9	6591.7	6380.9	5896.2	5481.6	5392.6	5423.4
15-24	2616.2	3299.0	4003.7	4479.1	4658.5	4178.2	4104.5
25-44	4871.0	5026.7	5409.9	6217.5	7183.2	8168.0	8375.9
45-64	3168.0	3557.9	4023.3	4397.4	4657.8	4873.5	4928.7
65+	1391.2	1539.6	1743.9	2002.3	2360.6	2697.5	2792.7
Total Population	18238.3	20014.9	21561.7	22992.5	24341.7	25309.8	25625.2
				Percentage Total Population			
0-14	33.9%	32.9%	29.6%	25.6%	22.5%	21.3%	21.2%
15-24	14.3%	16.5%	18.6%	19.5%	19.1%	16.5%	16.0%
25-44	26.7%	25.1%	25.1%	27.0%	29.5%	32.3%	32.7%
45-64	17.4%	17.8%	18.7%	19.1%	19.1%	19.3%	19.2%
65+	7.6%	7.7%	8.1%	8.7%	9.7%	10.7%	10.9%
Total Population	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Sources: Statistics Canada (1973), Population (1921-1971) Revised Annual Estimates of Population by Sex and Age Group, Canada and the Provinces, Catalogue 91-512, Ottawa: Information Canada.

Statisics Canada (1987), Final Intercensal Estimates of the Population by Sex and Age, Canada and Provinces, Catalogue 91-518, June 1, 1977-1986, Ottawa: Supply and Services Canada.

Statistics Canada (1987), 1986 Census National Package, Ottawa: Supply and Services Canada.

Statistics Canada (May, 1988), Postcensal Annual Estimates of Population by marital status, age, sex and components of growth for Canada, provinces and territories, June 1, 1987, Catalogue 91-210, Ottawa: Supply and Services Canada.

Table 1B
Population Estimates
by Age and Sex
Nova Scotia, 1961-1986

(Population in Thousands)

	1961	1966	1971	1976	1981	1986	1987
				Male			
0-14	131.2	130.3	123.3	114.8	101.7	95.9	95.1
15-24	58.7	64.1	75.8	82.8	83.2	78.6	77.1
25-44	88.6	84.2	89.5	105.2	118.1	134.7	138.0
45-64	65.4	70.5	75.1	75.4	76.0	77.2	77.9
65+	30.3	31.4	32.8	35.9	40.5	44.1	44.9
Total Male	374.2	380.5	396.5	414.1	419.5	430.5	433.0
				Female			
0-14	125.1	124.2	117.5	108.9	96.8	91.5	90.7
15-24	54.9	62.6	72.8	79.3	80.9	74.8	73.4
25-44	88.4	84.3	87.3	102.3	118.1	135.9	139.3
45-64	61.3	68.4	75.1	79.1	80.0	80.6	81.1
65+	33.1	36.0	39.8	44.8	52.1	59.8	61.2
Total Female	362.8	375.5	392.5	414.4	427.9	442.6	445.7
				Total Population			
0-14	256.3	254.5	240.8	223.7	198.5	187.4	185.8
15-24	113.6	126.7	148.6	162.1	164.1	153.4	150.5
25-44	177.0	168.5	176.8	207.5	236.2	270.6	277.3
45-64	126.7	138.9	150.2	154.5	156.0	157.8	159.0
65+	63.4	67.4	72.6	80.7	92.6	103.9	106.1
Total Population	737.0	756.0	789.0	828.5	847.4	873.1	878.7
				Percentage Total Population			
0-14	34.8%	33.7%	30.5%	27.0%	23.4%	21.5%	21.1%
15-24	15.4%	16.8%	18.8%	19.6%	19.4%	17.6%	17.1%
25-44	24.0%	22.3%	22.4%	25.0%	27.9%	31.0%	31.6%
45-64	17.2%	18.4%	19.0%	18.6%	18.4%	18.1%	18.1%
65+	8.6%	8.9%	9.2%	9.7%	10.9%	11.9%	12.1%
Total Population	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Sources: Statistics Canada (1987), THE NATION: Populations and Dwelling Characteristics - Age, Sex and Marital Status, Catalogue 93-101, Ottawa: Supply and Services Canada. (1961-1986 data)

Statistics Canada (May 1988), Postcensal Annual Estimates of Population by Marital Status, Age, Sex and components of growth for Canada, provinces and territories, June 1, 1987, Catalogue 91-210, Ottawa: Supply and Services Canada. (1987 data)

Table 1C
Population Estimates
by Age and Sex
New Brunswick, 1961-1987

(Population in Thousands)

	1961	1966	1971	1976	1981	1986	1987
				Male			
0-14	116.1	113.6	104.3	99.0	89.0	82.7	81.5
15-24	46.2	54.6	64.3	69.9	69.3	63.2	62.4
25-44	68.3	65.5	69.1	84.6	97.3	110.2	112.2
45-64	48.8	52.8	56.7	58.4	59.3	60.9	61.3
65+	23.0	23.6	25.0	27.4	31.1	33.7	34.4
Total Male	302.4	310.1	319.4	339.3	346.0	350.7	351.8
				Female			
0-14	111.1	108.5	98.8	94.1	84.6	78.9	77.7
15-24	44.7	53.3	62.1	67.6	67.4	61.1	59.9
25-44	69.0	66.4	67.8	81.8	96.5	110.1	112.5
45-64	46.7	51.8	56.8	60.7	62.5	63.5	63.8
65+	24.0	26.7	29.7	33.7	39.4	45.1	46.5
Total Female	295.5	306.7	315.2	337.9	350.4	358.7	360.4
				Total Population			
0-14	227.2	222.1	203.1	193.1	173.6	161.6	159.2
15-24	90.9	107.9	126.4	137.5	136.7	124.3	122.3
25-44	137.3	131.9	136.9	166.4	193.8	220.3	224.7
45-64	95.5	104.6	113.5	119.1	121.8	124.4	125.1
65+	47.0	50.3	54.7	61.1	70.5	78.8	80.9
Total Population	597.9	616.8	634.6	677.2	696.4	709.4	712.2
				Percentage Total Population			
0-14	38.0%	36.0%	32.0%	28.5%	24.9%	22.8%	22.4%
15-24	15.2%	17.5%	19.9%	20.3%	19.6%	17.5%	17.2%
25-44	23.0%	21.4%	21.6%	24.6%	27.8%	31.1%	31.6%
45-64	16.0%	17.0%	17.9%	17.6%	17.5%	17.5%	17.6%
65+	7.9%	8.2%	8.6%	9.0%	10.1%	11.1%	11.4%
Total Population	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Sources: Statistics Canada (1987), THE NATION: Populations and Dwelling Characteristics - Age, Sex and Marital Status, Catalogue 93-101, Ottawa: Supply and Services Canada. (1961-1986 data)

Statistics Canada (May 1988), Postcensal Annual Estimates of Population by Marital Status, Age, Sex and components of growth for Canada, provinces and territories, June 1, 1987, Catalogue 91-210, Ottawa: Supply and Services Canada. (1987 data)

Table 1D
Population Estimates
by Age and Sex
Newfoundland, 1961-1987

(Population in Thousands)

	1961	1966	1971	1976	1981	1986	1987
				Male			
0-14	97.3	101.6	99.3	96.2	85.7	75.1	73.3
15-24	37.3	44.9	52.2	58.1	57.0	55.3	54.3
25-44	53.1	53.2	57.5	68.5	78.3	85.8	86.9
45-64	33.8	38.2	41.8	43.3	44.4	45.4	45.8
65+	13.5	14.2	15.3	17.2	20.2	22.7	23.3
Total Male	235.0	252.1	266.1	283.3	285.6	284.3	283.6
				Female			
0-14	94.3	97.5	95.3	91.6	81.6	71.7	69.9
15-24	36.8	45.3	52.0	56.8	57.1	54.1	53.7
25-44	48.1	49.2	54.1	65.5	77.3	87.0	88.6
45-64	30.2	34.3	37.7	41.1	42.4	44.0	44.4
65+	13.5	15.0	16.9	19.4	23.6	27.2	27.9
Total Female	222.9	241.3	256.0	274.4	282.0	284.0	284.5
				Total Population			
0-14	191.6	199.1	194.6	187.8	167.3	146.8	143.2
15-24	74.1	90.2	104.2	114.9	114.1	109.4	108.0
25-44	101.2	102.4	111.6	134.0	155.6	172.8	175.5
45-64	64.0	72.5	79.5	84.4	86.8	89.4	90.2
65+	27.0	29.2	32.2	36.6	43.8	49.9	51.2
Total Population	457.9	493.4	522.1	557.7	567.6	568.3	568.1
				Percentage Total Population			
0-14	41.8%	40.4%	37.3%	33.7%	29.5%	25.8%	25.2%
15-24	16.2%	18.3%	20.0%	20.6%	20.1%	19.3%	19.0%
25-44	22.1%	20.8%	21.4%	24.0%	27.4%	30.4%	30.9%
45-64	14.0%	14.7%	15.2%	15.1%	15.3%	15.7%	15.9%
65+	5.9%	5.9%	6.2%	6.6%	7.7%	8.8%	9.0%
Total Population	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Sources: Statistics Canada (1987), THE NATION: Populations and Dwelling Characteristics - Age, Sex and Marital Status, Catalogue 93-101, Ottawa: Supply and Services Canada. (1961-1986 data)

Statistics Canada (May 1988), Postcensal Annual Estimates of Population by Marital Status, Age, Sex and components of growth for Canada, provinces and territories, June 1, 1987, Catalogue 91-210, Ottawa: Supply and Services Canada. (1987 data)

Table 1E
Population Estimates
by Age and Sex
Prince Edward Island, 1961-1987

(Population in Thousands)

	1961	1966	1971	1976	1981	1986	1987
				Male			
0-14	19.1	19.2	18.1	17.2	15.7	15.2	15.2
15-24	7.9	9.1	10.6	11.5	11.8	11.3	11.0
25-44	11.5	11.4	11.8	14.3	16.3	18.5	18.9
45-64	9.6	9.8	10.2	10.3	10.6	11.0	11.1
65+	5.2	5.5	5.5	6.0	6.5	6.9	6.9
Total Male	53.3	55.0	56.2	59.3	60.9	62.9	63.1
				Female			
0-14	18.6	18.4	17.3	16.0	14.7	14.2	14.2
15-24	7.3	8.8	10.2	11.4	11.7	10.9	10.7
25-44	11.0	10.8	11.1	13.7	16.0	18.5	18.9
45-64	8.7	9.4	10.0	10.6	10.9	11.0	11.1
65+	5.7	6.1	6.8	7.2	8.3	9.1	9.3
Total Female	51.3	53.5	55.4	58.9	61.6	63.7	64.2
				Total Population			
0-14	37.7	37.6	35.4	33.2	30.4	29.4	29.4
15-24	15.2	17.9	20.8	22.9	23.5	22.2	21.7
25-44	22.5	22.2	22.9	28.0	32.3	37.0	37.8
45-64	18.3	19.2	20.2	20.9	21.5	22.0	22.2
65+	10.9	11.6	12.3	13.2	14.8	16.0	16.2
Total Population	104.6	108.5	111.6	118.2	122.5	126.6	127.3
				Percentage Total Population			
0-14	36.0%	34.7%	31.7%	28.1%	24.8%	23.2%	23.1%
15-24	14.5%	16.5%	18.6%	19.4%	19.2%	17.5%	17.0%
25-44	21.5%	20.5%	20.5%	23.7%	26.4%	29.2%	29.7%
45-64	17.5%	17.7%	18.1%	17.7%	17.6%	17.4%	17.4%
65+	10.4%	10.7%	11.0%	11.2%	12.1%	12.6%	12.7%
Total Percentage	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Sources: Statistics Canada (1987), THE NATION: Populations and Dwelling Characteristics - Age, Sex and Marital Status, Catalogue 93-101, Ottawa: Supply and Services Canada. (1961-1986 data)

Statistics Canada (May 1988), Postcensal Annual Estimates of Population by Marital Status, Age, Sex and components of growth for Canada, provinces and territories, June 1, 1987, Catalogue 91-210, Ottawa: Supply and Services Canada. (1987 data)

Table 1F
Population Estimates
by Age and Sex
Saskatchewan, 1961-1986

(Population in Thousands)

	1961	1966	1971	1976	1981	1986	1987
				Male			
0-14	161.2	164.1	143.1	126.5	122.2	125.6	126.3
15-24	66.4	76.3	84.1	91.1	93.2	84.9	82.7
25-44	117.3	109.4	101.4	105.2	124.9	146.7	150.1
45-64	87.4	92.7	94.5	92.7	91.6	89.3	88.8
65+	47.3	46.6	47.6	49.3	54.2	57.8	58.7
Total Male	479.6	489.1	470.7	464.8	486.1	504.3	506.6
				Female			
0-14	153.6	156.8	137.3	121.5	116.3	120.1	120.5
15-24	63.4	74.2	80.6	87.2	90.8	82.5	80.1
25-44	112.2	105.7	97.9	101.6	120.7	141.9	145.1
45-64	78.2	87.2	92.5	93.3	92.3	89.9	89.2
65+	38.2	42.4	47.2	52.9	62.1	70.8	72.5
Total Female	445.6	466.3	455.5	456.5	482.2	505.2	507.4
				Total Population			
0-14	314.8	320.9	280.4	248.0	238.5	245.7	246.8
15-24	129.8	150.5	164.7	178.3	184.0	167.4	162.8
25-44	229.5	215.1	199.3	206.8	245.6	288.6	295.2
45-64	165.6	179.9	187.0	186.0	183.9	179.2	178.0
65+	85.5	89.0	94.8	102.2	116.3	128.6	131.2
Total Population	925.2	955.4	926.2	921.3	968.3	1009.5	1014.0
				Percentage Total Population			
0-14	34.0%	33.6%	30.3%	26.9%	24.6%	24.3%	24.3%
15-24	14.0%	15.8%	17.8%	19.4%	19.0%	16.6%	16.1%
25-44	24.8%	22.5%	21.5%	22.4%	25.4%	28.6%	29.1%
45-64	17.9%	18.8%	20.2%	20.2%	19.0%	17.8%	17.6%
65+	9.2%	9.3%	10.2%	11.1%	12.0%	12.7%	12.9%
Total Population	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Sources: Statistics Canada (1987), THE NATION: Populations and Dwelling Characteristics - Age, Sex and Marital Status, Catalogue 93-101, Ottawa: Supply and Services Canada. (1961-1986 data)

Statistics Canada (May 1988), Postcensal Annual Estimates of Population by Marital Status, Age, Sex and components of growth for Canada, provinces and territories, June 1, 1987, Catalogue 91-210, Ottawa: Supply and Services Canada. (1987 data)

Table 1G
Population Estimates
by Age and Sex
Manitoba, 1961-1987

(Population in Thousands)

	1961	1966	1971	1976	1981	1986	1987
				Male			
0-14	153.4	157.1	146.2	135.8	122.1	120.9	122.8
15-24	66.0	78.2	92.0	98.0	95.8	89.4	89.0
25-44	119.7	113.0	115.5	128.7	139.0	160.4	165.7
45-64	87.0	93.1	96.4	97.7	96.2	96.0	96.5
65+	42.4	42.9	44.5	47.8	53.4	57.0	58.2
Total Male	468.5	484.3	494.6	508.0	506.5	523.7	532.2
				Female			
0-14	146.7	150.1	140.6	129.5	116.2	114.8	116.6
15-24	63.8	76.6	89.8	96.3	94.4	87.5	86.6
25-44	118.3	113.5	112.4	125.8	139.1	159.8	164.4
45-64	83.4	92.7	99.8	103.2	101.6	100.3	100.1
65+	41.0	45.9	51.0	58.7	68.4	76.9	79.1
Total Female	453.2	478.8	493.6	513.5	519.7	539.3	546.8
				Total Population			
0-14	300.1	307.2	286.8	265.3	238.3	235.7	239.4
15-24	129.8	154.8	181.8	194.3	190.2	176.9	175.6
25-44	238.0	226.5	227.9	254.5	278.1	320.2	330.1
45-64	170.4	185.8	196.2	200.9	197.8	196.3	196.6
65+	83.4	88.8	95.5	106.5	121.8	133.9	137.3
Total Population	921.7	963.1	988.2	1021.5	1026.2	1063.0	1079.0
				Percentage Total Population			
0-14	32.6%	31.9%	29.0%	26.0%	23.2%	22.2%	22.2%
15-24	14.1%	16.1%	18.4%	19.0%	18.5%	16.6%	16.3%
25-44	25.8%	23.5%	23.1%	24.9%	27.1%	30.1%	30.6%
45-64	18.5%	19.3%	19.9%	19.7%	19.3%	18.5%	18.2%
65+	9.0%	9.2%	9.7%	10.4%	11.9%	12.6%	12.7%
Total Population	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Sources: Statistics Canada (1987), THE NATION: Populations and Dwelling Characteristics - Age, Sex and Marital Status, Catalogue 93-101, Ottawa: Supply and Services Canada. (1961-1986 data)

Statistics Canada (May 1988), Postcensal Annual Estimates of Population by Marital Status, Age, Sex and components of growth for Canada, provinces and territories, June 1, 1987, Catalogue 91-210, Ottawa: Supply and Services Canada. (1987 data)

Table 1H
Population Estimates
by Age and Sex
Atlantic Canada, 1961-1987

(Population in Thousands)

	1961	1966	1971	1976	1981	1986	1987
				ATLANTIC CANADA			
0-14	712.8	713.3	673.9	637.8	569.8	525.2	517.6
15-24	293.8	342.7	400	437.4	438.4	409.3	402.5
25-44	438	425	448.2	535.9	617.9	700.7	715.3
45-64	304.5	335.2	363.4	378.9	386.1	393.6	396.5
65+	148.3	158.5	171.8	191.6	221.7	248.6	254.4
Total Population	1897.4	1974.7	2057.3	2181.6	2233.9	2277.4	2286.3
				Nova Scotia			
0-14	256.3	254.5	240.8	223.7	198.5	187.4	185.8
15-24	113.6	126.7	148.6	162.1	164.1	153.4	150.5
25-44	177	168.5	176.8	207.5	236.2	270.6	277.3
45-64	126.7	138.9	150.2	154.5	156	157.8	159
65+	63.4	67.4	72.6	80.7	92.6	103.9	106.1
Total Population	737	756	789	828.5	847.4	873.1	878.7
				New Brunswick			
0-14	227.2	222.1	203.1	193.1	173.6	161.6	159.2
15-24	90.9	107.9	126.4	137.5	136.7	124.3	122.3
25-44	137.3	131.9	136.9	166.4	193.8	220.3	224.7
45-64	95.5	104.6	113.5	119.1	121.8	124.4	125.1
65+	47	50.3	54.7	61.1	70.5	78.8	80.9
Total Population	597.9	616.8	634.6	677.2	696.4	709.4	712.2
				Newfoundland			
0-14	191.6	199.1	194.6	187.8	167.3	146.8	143.2
15-24	74.1	90.2	104.2	114.9	114.1	109.4	108
25-44	101.2	102.4	111.6	134	155.6	172.8	175.5
45-64	64	72.5	79.5	84.4	86.8	89.4	90.2
65+	27	29.2	32.2	36.6	43.8	49.9	51.2
Total Population	457.9	493.4	522.1	557.7	567.6	568.3	568.1
				Prince Edward Island			
0-14	37.7	37.6	35.4	33.2	30.4	29.4	29.4
15-24	15.2	17.9	20.8	22.9	23.5	22.2	21.7
25-44	22.5	22.2	22.9	28	32.3	37	37.8
45-64	18.3	19.2	20.2	20.9	21.5	22	22.2
65+	10.9	11.6	12.3	13.2	14.8	16	16.2
Total Population	104.6	108.5	111.6	118.2	122.5	126.6	127.3

Sources: Statistics Canada (1987), THE NATION: Populations and Dwelling Characteristics - Age, Sex and Marital Status, Catalogue 93-101, Ottawa: Supply and Services Canada. (1961-1986 data)

Statistics Canada (May 1988), Postcensal Annual Estimates of Population by Marital Status, Age, Sex and components of growth for Canada, provinces and territories, June 1, 1987, Catalogue 91-210, Ottawa: Supply and Services Canada. (1987 data)

Table 2
Elderly Population by Age Group
Canada, 1941-1987

(in thousands)

	Canada	65- 74		75- 84		85 +		Total 65+ Population	
	Total Pop	Number	Total Pop	Number	Total Pop	Number	Total Pop	Number	Total Pop
1941	11,506.6	524.8	4.6%	207.2	1.8%	35.8	0.3%	767.8	6.7%
1946	---	---	---	---	---	---	---	---	---
1951	14,009.4	748.5	5.3%	285.2	2.0%	52.5	0.4%	1,086.2	7.8%
1956	16,080.8	834.8	5.2%	344.6	2.1%	64.5	0.4%	1,243.9	7.7%
1961	18,238.2	889.3	4.9%	421.1	2.3%	80.8	0.4%	1,391.2	7.6%
1966	20,014.8	958.9	4.8%	477.7	2.4%	102.9	0.5%	1,539.5	7.7%
1971	21,568.3	1,077.3	5.0%	529.7	2.5%	137.4	0.6%	1,744.4	8.1%
1976	22,992.6	1,254.5	5.5%	583.3	2.5%	164.5	0.7%	2,002.3	8.7%
1981	24,343.2	1,477.7	6.1%	689.4	2.8%	193.8	0.8%	2,360.9	9.7%
1982	24,631.8	1,511.8	6.1%	715.3	2.9%	200.7	0.8%	2,427.8	9.9%
1983	24,889.8	1,539.3	6.2%	747.1	3.0%	210.1	0.8%	2,496.5	10.0%
1984	25,127.9	1,563.8	6.2%	776.5	3.1%	216.2	0.9%	2,556.5	10.2%
1985	25,358.5	1,608.1	6.3%	807.9	3.2%	225.2	0.9%	2,641.2	10.4%
1986	25,309.3	1,650.1	6.5%	819.7	3.2%	227.8	0.9%	2,697.6	10.7%
1987	25,625.1	1,704.6	6.7%	851.8	3.3%	236.3	0.9%	2,792.7	10.9%

Source: Statistics Canada (1987), The Nation: population and dwelling characteristics - age, sex and mairtal status, Catalogue 93-101, Ottawa: Supply and Services Canada. (1941-1986 data)

Statistics Canada (various years), Postcensal Annual Estimates of Population by Marital Status, Age, Sex and Components of Growth for Canada, Provinces and Territories, Catalogue 91-210, Ottawa: Supply and Services Canada.

Table 3
Percentage Total Population
by Age Group
Selected Provinces and Canada, 1987

Age Group / Province	0-14 (%)	15-24 (%)	25-44 (%)	45-64 (%)	65+ (%)	Total (%)
Nova Scotia	21.1	17.1	31.6	18.1	12.1	100
New Brunswick	22.3	17.2	31.5	17.6	11.4	100
Newfoundland	25.2	19.0	30.9	15.9	9.0	100
PEI	23.1	17.0	29.7	17.4	12.7	100
Atlantic Canada	22.6	17.6	31.3	17.4	11.1	100
Saskatchewan	24.3	16.1	29.1	17.6	12.9	100
Manitoba	22.2	16.3	30.6	18.2	12.7	100
Canada	21.2	16.0	32.7	19.2	10.9	100

Source: see Tables 1A-G.

Table 4
Number and Percentage Composition of Population Aged 65+
by Age Group and Sex, in Thousands
Provinces and Canada, 1987

(in thousands)

	Male			Female			Total
	65-74	75-84	85+	65-74	75-84	85+	65+
NFLD	15.6	6.4	1.4	17.0	8.0	2.6	51.0
PEI	4.2	3.5	0.6	5.1	3.0	1.3	17.7
NB	22.1	10.2	2.1	26.5	14.8	5.1	80.8
NS	28.1	13.2	2.7	35.3	19.3	6.6	105.2
PQ	182.4	75.6	14.5	238.1	127.7	35.0	673.3
ONT	279.9	121.1	25.4	345.6	193.0	65.1	1030.1
MAN	36.2	17.8	4.1	44.4	25.8	8.9	137.2
SASK	35.4	18.5	4.8	41.0	23.6	8.0	131.3
ALTA	55.2	25.6	6.0	65.6	35.1	11.0	198.5
BC	101.6	46.3	10.0	123.1	63.7	21.0	365.7
YUKON	0.3	0.1	---	0.3	0.1	---	0.8
NWT	0.5	0.3	---	0.4	0.2	---	1.4
CANADA	762.4	337.1	71.6	942.2	514.7	164.7	2792.7

Note: Total Canada 65+ not sum of provinces, likely due to rounding error
Source: see below

(Percentage)

	Male			Female			Total
	65-74	75-84	85+	65-74	75-84	85+	65+
NFLD	30.6%	12.5%	2.7%	33.3%	15.7%	5.1%	100.0%
PEI	23.7%	19.8%	3.4%	28.8%	16.9%	7.3%	100.0%
NB	27.4%	12.6%	2.6%	32.8%	18.3%	6.3%	100.0%
NS	26.7%	12.5%	2.6%	33.6%	18.3%	6.3%	100.0%
PQ	27.1%	11.2%	2.2%	35.4%	19.0%	5.2%	100.0%
ONT	27.2%	11.8%	2.5%	33.6%	18.7%	6.3%	100.0%
MAN	26.4%	13.0%	3.0%	32.4%	18.8%	6.5%	100.0%
SASK	27.0%	14.1%	3.7%	31.2%	18.0%	6.1%	100.0%
ALTA	27.8%	12.9%	3.0%	33.0%	17.7%	5.5%	100.0%
BC	27.8%	12.7%	2.7%	33.7%	17.4%	5.7%	100.0%
YUKON	37.5%	12.5%	---	37.5%	12.5%	---	100.0%
NWT	35.7%	21.4%	---	28.6%	14.3%	---	100.0%
CANADA	27.3%	12.1%	2.6%	33.7%	18.4%	5.9%	100.0%

Source: Statistics Canada (May 1988), Postcensal Annual Estimates of Population by marital status, age, sex and components of growth for Canada, provinces and territories, June 1, 1987, table 2, Catalogue 91-210, Ottawa, Supply and Services Canada.

Table 5
Projected Growth Rate of the Population
Selected Provinces and Canada
1983-2006

(Percentage Change)

	Scenario				
	1	2	3	4	5
Canada	12.9	12.9	16.0	20.6	27.1
Nova Scotia	10.5	2.4	6.0	16.1	17.6
New Brunswick	15.2	2.0	6.1	21.2	18.3
Newfoundland	24.4	4.2	9.8	32.5	20.0
PEI	18.8	0.8	5.2	25.9	14.8
Saskatchewan	22.4	15.1	20.5	32.6	32.7
Manitoba	7.6	4.3	8.8	16.6	27.6

Source: Statistics Canada (1985), Population Projections for Canada, Provinces and Territories 1984-2006, Catalogue 91-520, Ottawa: Supply and Services Canada, p. 58.

Table 6A
Population Estimates Projections
Canada, 1983-2006

Age Groups by Sex
Number In Thousands

Males	Actual	Projected				
	1983	1986	1991	1999	2001	2006
0-14	2798.8	2778.1	2758.1	2619.9	2376.1	2156.7
15-24	2302.5	2188.1	1933.5	1874.1	1905.9	1879.4
25-44	3821.5	4118.1	4501.0	4506.6	4378.5	4159.1
45-64	2340.5	2418.1	2615.2	2971.7	3386.4	3855.7
65+	1060.2	1153.5	1342.1	1527.9	1670.1	1785.6

Rate of Change Each 5 Years

Males	Actual	Projected				
	1983	1986	1991	1999	2001	2006
0-14	---	-0.7%	-0.7%	-5.0%	-9.3%	-9.2%
15-24	---	-5.0%	-11.6%	-3.1%	1.7%	-1.4%
25-44	---	7.8%	9.3%	0.1%	-2.8%	-5.0%
45-64	---	3.3%	8.2%	13.6%	14.0%	13.9%
65+	---	8.8%	16.4%	13.8%	9.3%	6.9%

Number In Thousands

Females	Actual	Projected				
	1983	1986	1991	1996	2001	2006
0-14	2657.5	2639.5	2622.3	2489.7	2256.1	2044.6
15-24	2235.1	2097.0	1842.9	1787.2	1819.9	1793.7
25-44	3812.7	4123.2	4491.5	4462.3	4284.2	4022.6
45-64	2424.6	2493.3	2675.2	3059.8	3525.7	4036.4
65+	1436.3	1574.0	1831.0	2049.8	2213.4	2353.8

Rate of Change Each 5 Years

Females	Actual	Projected				
	1983	1986	1991	1999	2001	2006
0-14	---	-0.7%	-0.7%	-5.1%	-9.4%	-9.4%
15-24	---	-6.2%	-12.1%	-3.0%	1.8%	-1.4%
25-44	---	8.1%	8.9%	-0.7%	-4.0%	-6.1%
45-64	---	2.8%	7.3%	14.4%	15.2%	14.5%
65+	---	9.6%	16.3%	11.9%	8.0%	6.3%

Dependency Ratios

Both Sexes	Actual	Projected				
	1983	1986	1991	1996	2001	2006
0-17	41.2	39.3	37.1	34.5	30.8	27.3
65+	18.2	19.3	21.6	23.4	24.4	25.2
Total	59.4	58.6	58.7	57.9	55.2	52.5

Source: Statistics Canada (1985), Population Projections for Canada, Provinces and Territories 1984-2006, Catalogue 91-520, Ottawa: Supply and Services Canada.

Table 6B
Population Estimates Projections
Nova Scotia, 1983-2006

Age Groups by Sex
Number In Thousands

Males	Actual	Projected				
	1983	1986	1991	1996	2001	2006
0-14	99.9	96.4	65.8	88.2	80.9	73.1
15-24	82.1	80.9	71.5	65.7	63.4	62.8
25-44	124.5	135.9	151.9	154.1	152.4	144.5
45-64	76.5	77.9	84.1	97.6	111.6	128.0
65+	42.1	45.2	49.7	53.2	56.4	59.4

Rate of Change Each 5 Years

Males	Actual	Projected				
	1983	1986	1991	1996	2001	2006
0-14	--	-3.5%	-31.7%	34.0%	-8.3%	-9.6%
15-24	--	-1.5%	-11.6%	-8.1%	-3.5%	-0.9%
25-44	--	9.2%	11.8%	1.4%	-1.1%	-5.2%
45-64	--	1.8%	8.0%	16.1%	14.3%	14.7%
65+	--	7.4%	10.0%	7.0%	6.0%	5.3%

Number In Thousands

Females	Actual	Projected				
	1983	1986	1991	1996	2001	2006
0-14	94.8	92.3	88.8	84.2	76.9	69.5
15-24	78.8	76.7	67.7	63.2	61.4	60.2
25-44	125.7	137.0	152.0	152.9	149.1	140.6
45-64	80.5	81.4	87.0	100.8	117.0	134.7
65+	55.1	59.5	65.8	70.6	74.0	77.1

Rate of Change Each 5 Years

Females	Actual	Projected				
	1983	1986	1991	1996	2001	2006
0-14	--	-2.6%	-3.8%	-5.2%	-8.7%	-9.6%
15-24	--	-2.7%	-11.7%	-6.6%	-2.8%	-2.0%
25-44	--	9.0%	10.9%	0.6%	-2.5%	-5.7%
45-64	--	1.1%	6.9%	15.9%	16.1%	15.1%
65+	--	8.0%	10.6%	7.3%	4.8%	4.2%

Dependency Ratios

Both Sexes	Actual	Projected				
	1983	1986	1991	1996	2001	2006
0-17	41.2	41.3	37.5	34.4	30.8	27.3
65+	18.2	21.7	22.9	23.7	24.0	24.2
Total	59.4	63.1	60.3	58.1	54.8	51.5

Source: Statistics Canada (1985), Population Projections for Canada, Provinces and Territories 1984-2006, Catalogue 91-520, Ottawa: Supply and Services Canada.

Table 6C
Population Estimates Projections
New Brunswick, 1983-2006

Age Groups by Sex
Number In Thousands

Males	Actual	Projected				
	1983	1986	1991	1996	2001	2006
0-14	87.5	84.6	80.5	76.4	70.0	63.9
15-24	68.2	67.3	61.4	57.7	55.7	54.3
25-44	103.0	112.1	127.7	131.6	132.2	127.0
45-64	59.9	61.6	67.4	80.4	94.4	109.9
65+	32.2	34.4	38.3	41.4	43.9	46.9

Rate of Change Each 5 Years

Males	Actual	Projected				
	1983	1986	1991	1996	2001	2006
0-14	--	-3.3%	-4.8%	-5.1%	-8.4%	-8.7%
15-24	--	-1.3%	-8.8%	-6.0%	-3.5%	-2.5%
25-44	--	8.8%	13.9%	3.1%	0.5%	-3.9%
45-64	--	2.8%	9.4%	19.3%	17.4%	16.4%
65+	--	6.8%	11.3%	8.1%	6.0%	6.8%

Number in Thousands

Females	Actual	Projected				
	1983	1986	1991	1996	2001	2006
0-14	82.8	80.2	76.1	72.1	66.3	60.5
15-24	65.8	64.4	59.0	55.6	53.3	51.9
25-44	102.9	112.3	127.3	130.5	129.2	123.3
45-64	63.0	64.2	69.3	82.1	97.6	114.2
65+	41.4	45.0	50.9	55.5	59.0	62.3

Rate of Change Each 5 Years

Females	Actual	Projected				
	1983	1986	1991	1996	2001	2006
0-14	--	-3.1%	-5.1%	-5.3%	-8.0%	-8.7%
15-24	--	-2.1%	-8.4%	-5.8%	-4.1%	-2.6%
25-44	--	9.1%	13.4%	2.5%	-1.0%	-4.6%
45-64	--	1.9%	7.9%	18.5%	18.9%	17.0%
65+	--	8.7%	13.1%	9.0%	6.3%	5.6%

Dependency Ratios

Both Sexes	Actual	Projected				
	1983	1986	1991	1996	2001	2006
0-17	47.8	44.0	39.1	34.8	31.1	27.4
65+	19.5	20.2	21.4	22.0	22.3	22.7
Total	67.2	64.2	60.5	56.8	53.4	50.1

Source: Statistics Canada (1985), Population Projections for Canada, Provinces and Territories 1984-2006, Catalogue 91-520, Ottawa: Supply and Services Canada.

Table 6D
Population Estimates Projections
Newfoundland, 1983-2006

Age Groups by Sex
Number In Thousands

Males	Actual	Projected				
	1983	1986	1991	1996	2001	2006
0-14	83.5	80.5	77.1	75.4	70.4	64.9
15-24	58.0	60.1	57.2	52.2	50.3	50.5
25-44	82.3	90.3	104.8	112.3	115.3	113.0
45-64	45.0	46.8	53.3	64.8	78.1	91.9
65+	21.4	23.7	27.0	30.4	33.5	36.8

Rate of Change Each 5 Years

Males	Actual	Projected				
	1983	1986	1991	1996	2001	2006
0-14	---	-3.6%	-4.2%	-2.2%	-6.6%	-7.8%
15-24	---	3.6%	-4.8%	-8.7%	-3.6%	0.4%
25-44	---	9.7%	16.1%	7.2%	2.7%	-2.0%
45-64	---	4.0%	13.9%	21.6%	20.5%	17.7%
65+	---	10.7%	13.9%	12.6%	10.2%	9.9%

Number In Thousands

Females	Actual	Projected				
	1983	1986	1991	1996	2001	2006
0-14	79.1	76.2	73.1	71.2	66.3	61.0
15-24	57.7	59.0	55.8	50.9	49.2	49.3
25-44	82.4	91.3	106.1	113.7	115.8	112.7
45-64	43.2	45.1	52.1	64.2	78.9	94.5
65+	25.2	28.0	32.3	36.6	40.2	44.2

Rate of Change Each 5 Years

Females	Actual	Projected				
	1983	1986	1991	1996	2001	2006
0-14	---	-3.7%	-4.1%	-2.6%	-6.9%	-8.0%
15-24	---	2.3%	-5.4%	-8.8%	-3.3%	0.2%
25-44	---	10.8%	16.2%	7.2%	1.8%	-2.7%
45-64	---	4.4%	15.5%	23.2%	22.9%	19.8%
65+	---	11.1%	15.4%	13.3%	9.8%	10.0%

Dependency Ratios

Both Sexes	Actual	Projected				
	1983	1986	1991	1996	2001	2006
0-17	59.3	52.7	45.0	40.0	35.6	31.3
65+	15.3	15.8	16.3	17.1	17.6	18.3
Total	74.6	68.4	61.3	57.1	53.2	49.6

Source: Statistics Canada (1985), Population Projections for Canada, Provinces and Territories 1984-2006, Catalogue 91-520, Ottawa: Supply and Services Canada.

Table 6E
Population Estimates Projections
Prince Edward Island, 1983-2006

Age Groups by Sex
Number In Thousands

Males	Actual	Projected				
	1983	1986	1991	1996	2001	2006
0-14	15.7	15.2	14.7	14.0	13.0	12.0
15-24	11.4	11.5	10.7	10.4	10.2	10.1
25-44	16.9	18.5	21.4	22.5	23.2	23.1
45-64	10.7	10.9	11.9	14.1	16.4	19.1
65+	6.8	7.0	7.5	8.1	8.7	9.2

Rate of Change Each 5 Years

Males	Actual	Projected				
	1983	1986	1991	1996	2001	2006
0-14	---	-3.2%	-3.3%	-4.8%	-7.1%	-7.7%
15-24	---	0.9%	-7.0%	-2.8%	-1.9%	-1.0%
25-44	---	9.5%	15.7%	5.1%	3.1%	-0.4%
45-64	---	1.9%	9.2%	18.5%	16.3%	16.5%
65+	---	2.9%	7.1%	8.0%	7.4%	5.7%

Number In Thousands

Females	Actual	Projected				
	1983	1986	1991	1996	2001	2006
0-14	14.8	14.4	14.1	13.6	12.5	11.5
15-24	11.3	11.0	10.0	9.7	9.9	9.8
25-44	16.8	18.3	21.0	21.7	21.9	21.3
45-64	11.0	11.1	11.8	14.1	16.6	19.4
65+	8.6	9.1	9.9	10.5	11.2	11.8

Rate of Change Each 5 Years

Females	Actual	Projected				
	1983	1986	1991	1996	2001	2006
0-14	---	-2.7%	-2.1%	-3.5%	-8.1%	-8.0%
15-24	---	-2.7%	-9.1%	-3.0%	2.1%	-1.0%
25-44	---	8.9%	14.8%	3.3%	0.9%	-2.7%
45-64	---	0.9%	6.3%	19.5%	17.7%	16.9%
65+	---	5.8%	8.8%	6.1%	6.7%	5.4%

Dependency Ratios

Both Sexes	Actual	Projected				
	1983	1986	1991	1996	2001	2006
0-17	50.3	47.3	42.9	38.9	34.2	30.2
65+	24.0	24.5	24.8	24.7	24.7	24.8
Total	74.3	71.8	67.7	63.6	58.9	55.0

Source: Statistics Canada (1985), Population Projections for Canada, Provinces and Territories 1984-2006, Catalogue 91-520, Ottawa: Supply and Services Canada.

Table 6F
Population Estimates Projections
Saskatchewan, 1983-2006

Age Groups by Sex
Number In Thousands

Males	Actual	Projected				
	1983	1986	1991	1996	2001	2006
0-14	124.1	126.6	129.1	123.7	113.3	105.3
15-24	91.6	89.8	82.6	84.4	89.0	88.8
25-44	134.3	150.8	176.5	186.2	186.8	184.2
45-64	91.1	91.1	94.4	107.1	128.4	154.0
65+	56.1	59.2	64.6	69.4	72.3	74.2

Rate of Growth Each 5 Years

Males	Actual	Projected				
	1983	1986	1991	1996	2001	2006
0-14	---	2.0%	2.0%	-4.2%	-8.4%	-7.1%
15-24	---	-2.0%	-8.0%	2.2%	5.5%	-0.2%
25-44	---	12.3%	17.0%	5.5%	0.3%	-1.4%
45-64	---	0.0%	3.6%	13.5%	19.9%	19.9%
65+	---	5.5%	9.1%	7.4%	4.2%	2.6%

Number In Thousands

Females	Actual	Projected				
	1983	1986	1991	1996	2001	2006
0-14	118.2	120.8	123.0	118.2	108.3	100.6
15-24	88.9	86.0	78.8	80.8	84.9	84.9
25-44	130.3	146.7	171.6	180.4	180.7	176.7
45-64	92.0	91.6	94.1	106.1	127.0	153.0
65+	66.2	71.8	80.6	87.4	91.4	93.9

Rate of Growth Each 5 Years

Females	Actual	Projected				
	1983	1986	1991	1996	2001	2006
0-14	---	2.2%	1.8%	-3.9%	-8.4%	-7.1%
15-24	---	-3.3%	-8.4%	2.5%	5.1%	0.0%
25-44	---	12.6%	17.0%	5.1%	0.2%	-2.2%
45-64	---	-0.4%	2.7%	12.8%	19.7%	20.5%
65+	---	8.5%	12.3%	8.4%	4.6%	2.7%

Dependency Ratios

Both Sexes	Actual	Projected				
	1983	1986	1991	1996	2001	2006
0-17	49.6	48.0	45.7	41.9	36.7	32
65+	23.1	23.9	25.1	25.6	24.9	24.1
Total	72.6	71.9	70.8	67.4	61.6	56

Source: Statistics Canada (1985), Population Projections for Canada, Provinces and Territories 1984-2006, Catalogue 91-520, Ottawa: Supply and Services Canada.

Table 6G
Population Estimates Projections
Manitoba, 1983-2006

Age Groups by Sex
Number In Thousands

Males	Actual	Projected				
	1983	1986	1991	1996	2001	2006
0-14	122.6	121.8	120.4	113.7	101.0	90.3
15-24	94.7	92.8	85.2	81.1	80.6	78.6
25-44	147.6	161.4	182.0	182.4	175.4	164.1
45-64	96.1	96.8	101.4	113.7	129.1	146.6
65+	55.1	58.3	64.3	68.9	71.8	73.6

Rate of Growth Each 5 Years

Males	Actual	Projected				
	1983	1986	1991	1996	2001	2006
0-14	---	-0.7%	-1.1%	-5.6%	-11.2%	-10.6%
15-24	---	-2.0%	-8.2%	-4.8%	-0.6%	-2.5%
25-44	---	9.3%	12.8%	0.2%	-3.8%	-6.4%
45-64	---	0.7%	4.8%	12.1%	13.5%	13.6%
65+	---	5.8%	10.3%	7.2%	4.2%	2.5%

Number In Thousands

Females	Actual	Projected				
	1983	1986	1991	1996	2001	2006
0-14	116.5	115.3	114.0	107.5	95.5	85.4
15-24	92.6	89.7	81.2	77.0	76.5	74.5
25-44	148.1	162.1	182.0	181.7	173.4	161.0
45-64	101.8	101.9	105.0	117.9	134.9	154.1
65+	72.0	77.5	87.3	93.5	96.9	98.8

Rate of Growth Each 5 Years

Females	Actual	Projected				
	1983	1986	1991	1996	2001	2006
0-14	---	-1.0%	-1.1%	-5.7%	-11.2%	-10.6%
15-24	---	-3.1%	-9.5%	-5.2%	-0.6%	-2.6%
25-44	---	9.5%	12.3%	-0.2%	-4.6%	-7.2%
45-64	---	0.1%	3.0%	12.3%	14.4%	14.2%
65+	---	7.6%	12.6%	7.1%	3.6%	2.0%

Dependency Ratios

Both Sexes	Actual	Projected				
	1983	1986	1991	1996	2001	2006
0-17	44.5	42.5	39.7	36.8	32.7	28.8
65+	22.7	23.5	25.3	26.4	26.8	26.8
Total	67.2	66.0	65.0	63.3	59.5	55.6

Source: Statistics Canada (1985), Population Projections for Canada, Provinces and Territories 1984-2006, Catalogue 91-520, Ottawa: Supply and Services Canada.

Table 7
Projected Distribution of the Population of Canada
Among the Provinces and Territories
1983 and 2006

	Actual 1983	Projections 2006				
		1	2	3	4	5
		(Percent)				
Newfoundland	2.3	2.6	2.1	2.2	2.5	2.2
PEI	0.5	0.5	0.4	0.4	0.5	0.5
Nova Scotia	3.5	3.4	3.1	3.1	3.3	3.2
New Brunswick	2.8	2.9	2.6	2.6	2.8	2.6
Quebec	26.2	24.5	23.7	23.5	24.2	23.8
Ontario	35.4	36.6	34.8	34.6	36.8	35.9
Manitoba	4.2	4.0	3.9	3.9	4.1	4.2
Saskatchewan	4.0	4.3	4.1	4.2	4.4	4.2
Alberta	9.4	9.2	11.3	11.5	9.3	11.0
B.C.	11.4	11.7	13.7	13.7	11.8	12.1
Yukon	0.1	0.1	0.1	0.1	0.1	0.1
NWT	0.2	0.2	0.2	0.2	0.2	0.2
Canada	100.0	100.0	100.0	100.0	100.0	100.0

Source: Statistics Canada (1985), Population Projections for Canada, Provinces and Territories 1984-2006, Catalogue 91-520, Ottawa: Supply and Services Canada.

Table 8
Fertility Rates per 1,000 Women
Provinces and Canada, 1941-1986

	1941	1946	1951	1956	1961	1966	1971	1976	1981	1986
PEI	3228	4361	4189	4542	4881	3578	2909	2140	1908	1836
NS	3097	3748	3682	4092	4159	3150	2503	1882	1643	1623
NB	3688	4567	4378	4576	4543	3312	2667	2070	1712	1586
PQ	3389	3832	3775	3904	3700	2646	1878	1774	1614	1434
ONT	2403	2970	3222	3657	3742	2790	2221	1767	1633	1685
MAN	2506	3168	3302	3680	3936	2944	2540	2015	1856	1892
SASK	2809	3439	3590	4077	4221	3284	2688	2301	2143	2086
ALTA	2833	3510	3721	4282	4267	3066	2434	2040	1936	1932
BC	2305	2684	3201	3899	3785	2659	2135	1722	1706	1719
YUKON	---	---	5019	4756	5376	3626	3229	2024	2138	2036
NWT	---	---	6159	6315	7189	6154	4761	3175	2998	3006
CANADA	2832	3374	3503	3858	3840	2812	2187	1825	1704	1672

Notes: Data is not available for Newfoundland; work has recently begun to supply this information.

Yukon and N.W.T. data not available prior to 1951.

Sources: Statistics Canada (1979), Vital Statisitcs Vol. I Births 1977, Table 6, Catalogue 84-204, Ottawa: Supply and Services Canada. (1941-1976 data)

Statistics Canada (1984), vital Statistics Vol. I Births and Deaths 1982, Catalogue 84-204, Ottawa: Supply and Services Canada. (1981 data)

Unpublished data, 1986.

Table 9
Projections Total Fertility Rates
Selected Provinces and Canada
1986-1996

	Observed			Projected		
	1971	1976	1981	1986	1991	1996
Low Assumption						
Canada	2.19	1.82	1.70	1.60	1.50	1.40
Nova Scotia	2.50	1.88	1.64	1.54	1.45	1.36
New Brunswick	2.67	2.07	1.71	1.58	1.46	1.35
Newfoundland	3.40	2.37	2.03	1.82	1.65	1.50
PEI	2.91	2.14	1.90	1.73	1.57	1.43
Saskatchewan	2.69	2.30	2.14	1.92	1.74	1.57
Manitoba	2.54	2.02	1.86	1.70	1.58	1.45

	Observed			Projected		
	1971	1976	1981	1986	1991	1996
High Assumption						
Canada	2.19	1.82	1.70	1.69	1.95	2.20
Nova Scotia	2.50	1.88	1.64	1.64	1.90	2.16
New Brunswick	2.67	2.07	1.71	1.69	1.92	2.18
Newfoundland	3.40	2.37	2.03	1.96	2.13	2.31
PEI	2.91	2.14	1.90	1.95	2.10	2.27
Saskatchewan	2.69	2.30	2.14	2.04	2.23	2.38
Manitoba	2.54	2.02	1.86	1.82	2.04	2.28

Source: Statistics Canada (1985), Population Projections for Canada, Provinces and Territories, 1984-2006, Catalogue 91-520, Ottawa: Supply and Services Canada, p. 22.

Table 10
Projections Life Expectancy at Birth
Selected Provinces and Canada
1986-1996

	Observed			Projected		
	1971	1976	1981	1986	1991	1996
Male						
Canada	69.3	70.2	71.9	72.9	73.9	74.9
Nova Scotia	68.7	69.5	71.0	72.0	73.0	74.0
New Brunswick	69.1	69.7	71.1	72.1	73.1	74.1
Newfoundland	69.3	70.6	72.0	73.0	74.0	75.0
PEI	69.3	69.2	72.8	73.8	74.8	75.8
Saskatchewan	71.1	71.1	72.4	73.4	74.4	75.4
Manitoba	70.2	70.7	72.2	73.2	74.2	75.2

	Observed			Projected		
	1971	1976	1981	1986	1991	1996
Female						
Canada	76.4	77.5	79.0	80.0	80.8	81.6
Nova Scotia	76.0	77.8	78.4	79.4	80.2	81.0
New Brunswick	76.4	77.7	79.2	80.2	81.0	81.8
Newfoundland	75.7	77.4	78.7	79.7	80.5	81.3
PEI	77.4	78.2	80.5	81.5	82.3	83.1
Saskatchewan	77.6	78.6	79.6	80.6	81.4	82.2
Manitoba	76.9	77.9	78.8	79.8	80.6	81.4

Source: Statistics Canada (1985), Population Projections for Canada, Provinces and Territories, 1984-2006, Catalogue 91-520, Ottawa: Supply and Services Canada, p. 27.

Table 11
Marriage and Divorce Rates per 100,000 Population
Provinces and Canada, 1961-1987

	1961	1966	1971	1976	1981	1982	1983	1984	1985	1986	1987
					Marriages						
					Rate Per 100,000 Population						
NFLD	720	760	900	750	660	650	650	620	550	600	610
PEI	600	690	860	820	690	700	760	840	750	770	720
NB	750	840	970	850	730	700	740	740	740	700	680
NS	720	770	870	810	780	760	760	780	770	740	730
PQ	680	770	820	810	640	590	550	570	560	510	460
ONT	710	780	900	840	810	820	800	800	800	780	750
MAN	710	760	920	810	790	800	790	790	780	730	700
SASK	660	730	840	820	760	760	760	720	700	670	660
ALTA	790	810	960	970	970	960	900	850	840	800	780
BC	670	780	930	870	900	850	840	810	770	750	730
YUKON	880	650	900	880	1020	950	1090	970	810	770	780
NWT	630	630	720	620	620	550	590	520	450	500	480
CANADA	700	780	890	840	780	760	740	740	730	690	660
					Divorces						
					(Rate Per 100,000 Population						
NFLD	1.3	2.2	28.7	76.0	100.2	109.8	123.0	101.8	96.6	107.3	
PEI	7.6	16.6	54.7	98.1	152.6	167.8	173.4	155.6	167.6	150.9	
NB	32.4	25.1	76.1	138.5	269.6	267.6	274.8	200.1	189.1	239.6	
NS	33.2	53.7	91.6	211.6	191.6	237.9	272.3	260.3	265.4	292.0	
PQ	6.6	17.1	86.3	243.6	298.1	286.6	266.3	257.2	240.3	281.7	
ONT	43.9	58.9	158.5	224.9	251.4	271.3	261.7	242.1	230.0	314.8	
MAN	33.9	54.4	140.1	190.0	233.8	231.1	252.3	247.1	216.3	274.4	
SASK	27.1	33.6	88.1	131.0	199.5	185.3	201.5	197.6	189.0	237.2	
ALTA	78.0	107.1	224.6	309.9	376.2	283.3	372.7	359.9	344.9	396.7	
BC	85.8	113.4	225.6	333.7	347.4	364.3	331.0	313.1	288.0	387.6	
YUKON	164.1	146.0	255.4	306.8	324.0	492.9	394.6	458.7	421.0	387.7	
NWT	---	10.4	71.8	136.1	144.3	142.0	175.6	149.8	141.4	180.1	
CANADA	36.0	51.2	137.6	235.8	278.0	285.9	275.5	259.4	244.4	308.8	

Sources: *Marriage and Divorce Rates (unless otherwise indicated)*
Statistics Canada (April 1988), Quarterly Demographic Statistics, Catalogue 91-002, Table 4, Vol. 1 No. 4, Ottawa: Supply and Services. (1986 and 1987 data)

Statistics Canada (Nov 1979), Vital Statistics Vol II: Marriages and Divorces, Catalogue 84-204, Table 4, Ottawa: Supply and Services Canada. (1961-1976 data) Ibid, Vital Statistics Vol. II. (various years)

???Statistics Canada (June 3, 1988), The Daily, Ottawa: Supply and Services Canada. (1986 divorce rates)

???Unpublished data, calculation of Divorce Rates from The Daily by O. Adams,Statistics Canada, Health Division. (1986 divorce rates)
??? 1986 and 7 marriage rates????

Table 12
Household Formation
Canada, 1961-1986

Year	Total Families	Families	
		Husband/Wife	Lone Parent
1961	4,417,444	3,800,026	347,418
		91.6%	8.4%
1966	4,526,266	4,154,381	371,885
		91.8%	8.2%
1971	5,070,680	4,591,940	478,740
		90.6%	9.4%
1976	5,727,895	5,168,560	559,335
		90.2%	9.8%
1981	6,324,975	5,610,970	714,010
		88.7%	11.3%
1986	6,734,980	5,881,335	853,645
		87.3%	12.7%

Source: Statistics Canada (1984), Canada's Lone Parent Families, Ottawa: Supply and Services Canada

Statistics Canada (1987), 1986 Census National Package, Ottawa: Supply and Services Canada

Table 13
Average Number of Children Living at Home
Canada
1971-1986

Family Type	1971	1976	1981	1986
Husband and Wife	1.7	1.5	1.3	1.2
Lone Parent	1.8	1.9	1.7	1.6
Total Families	1.8	1.6	1.4	1.3

Source: Statistics Canada, unpublished data, Housing, Family and Social Statistics Division, Ottawa.

Table 14
Living Arrangements of the Elderly
By Age
Canada, 1986

Living Arrangements	Age Group 65-74	75-84	85+
Population in Institution	3.5%	17.5%	8.9%
Population in Private Household	96.5%	82.5%	91.1%
with family	65.9%	38.3%	55.2%
with relative	6.5%	11.7%	8.5%
with non relative	2.1%	2.2%	2.2%
living alone	22.0%	30.3%	25.2%

Source: Statistics Canada (July 1987), The Daily, Catalogue 11-001E.

Table 15
Living Arrangements of Nova Scotia Population
55 years and over, 1986

	55-64 Years			65-74 Years			75+ Years		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total Number	74,835	35,715	39,120	63,025	28,490	34,545	40,425	15,455	24,975
In Private Households - %	98.6	98.6	98.7	97.6	97.8	97.4	87.2	91.1	84.8
In Family Households	83.4	86.4	80.7	70.8	8.3	62.1	49.9	68.2	38.6
Husbands, wives or lone parents	79.9	82.7	77.3	65.9	77.8	56.1	39.0	60.5	25.7
Childeren - in husband-families	0.1	0.1	--	--	--	--	--	--	--
Childeren - in lone parent families	0.9	1.2	0.7	0.2	0.3	0.2	--	0.1	--
Non-family persons									
- living with relatives	2.0	1.6	2.4	4.1	2.4	5.4	9.8	6.1	12.0
- living with non-relatives	0.5	0.8	0.3	0.6	0.8	0.4	1.2	1.6	0.9
In non-famlily households	15.2	12.2	17.9	26.8	16.5	35.4	37.3	22.8	46.2
- living with relatives	2.8	2.4	3.2	4.4	3.3	5.3	6.6	4.3	8.0
- living with non-relatives	1.6	1.5	1.6	1.8	1.6	2.0	2.2	2.0	2.2
- living alone	10.8	8.3	13.1	20.6	11.6	28.0	28.5	16.5	35.9
In Collective Dwellings - %	1.4	1.4	1.3	2.4	2.2	2.6	12.8	8.9	15.2
Hospitals and other related									
General, psych, and phys. handicapped	0.1	0.2	0.1	0.1	0.2	0.1	0.3	0.4	0.1
Special Care-elderely and chron.ill	0.7	0.8	0.7	1.8	1.6	1.9	11.9	8.0	14.3
Service collective dwellings	0.3	0.5	0.2	0.2	0.4	0.1	0.3	0.5	0.3
Hotels, motels and tourist homes	0.1	0.1	--	--	0.1	--	--	0.1	--
Lodging and rooming houses	0.2	0.3	0.1	0.1	0.2	0.1	0.2	0.4	0.2
Other	0.1	0.1	0.1	0.1	0.1	--	--	--	0.1
Religious Institutions	0.2	--	0.3	0.3	--	0.4	0.3	0.1	0.5

Source: Nova Scotia Senior Citizens' Secretariat (May, 1988), Demographics of Seniors and Near Seniors in Nova Scotia, submitted to the Nova Scotia Royal Commision on Health Care, 1st draft.

Table 16
Female Labour Force Participation Rates
Summary, All Ages
Selected Provinces and Canada, 1976-1987

	NS	N.B.	NFLD	PEI	SASK	MAN	CANADA
1976	39.4	38.1	32.0	42.0	43.0	45.4	45.0
1981	45.3	44.0	38.5	47.2	48.3	52.2	51.6
1986	48.9	47.5	42.6	53.0	56.3	56.4	55.1
1987	50.3	48.9	43.0	53.5	56.2	57.1	56.2

Source: see Table 17

Table 17
Female Labour Force Participation Rates
By Age Groups
Selected Provinces and Canada
1976-1987

A.

Nova Scotia
Female Labour Force Participation Rates
1976-1987

	15-24	15-19	20-24	25-54	55-64	55+	65+	Provincial Total	Total Canada
1976	51.7	40.6	63.5	46.4	28.4	14.9	---	39.4	45.0
1977	52.5	40.3	65.4	47.5	28.2	14.9	---	40.1	45.9
1978	---	---	---	---	---	---	---	---	---
1979	54.2	43.3	65.8	51.0	29.1	14.8	---	42.1	48.9
1980	56.3	44.4	68.7	54.7	27.0	13.6	---	44.1	50.3
1981	58.3	47.7	68.8	56.8	25.0	12.8	---	45.3	51.6
1982	57.4	43.6	70.6	57.7	25.6	12.6	---	45.4	51.6
1983	---	---	---	---	---	---	---	---	---
1984	59.3	46.5	70.8	61.9	29.0	14.3	---	46.3	53.5
1985	59.6	42.8	73.8	61.7	26.1	12.9	---	47.8	54.3
1986	61.8	46.3	74.8	63.3	25.8	11.9	---	48.9	55.1
1987	61.1	43.8	76.1	65.8	27.4	12.5	---	50.3	56.2

B.

New Brunswick
Female Labour Force Participation Rates
1976-1987

	15-24	15-19	20-24	25-54	55-64	55+	65+	Provincial Total	Total Canada
1976	48.0	38.1	58.2	45.0	27.1	13.7	---	38.1	45.0
1977	47.6	35.2	60.0	45.6	28.9	15.3	---	38.7	45.9
1978	---	---	---	---	---	---	---	---	---
1979	50.9	39.1	63.4	48.7	29.5	15.4	---	41.0	48.9
1980	52.5	42.5	63.0	52.0	28.1	14.9	---	42.8	50.3
1981	54.6	44.2	65.2	54.2	26.1	13.5	---	44.0	51.6
1982	53.0	42.1	63.6	53.1	28.3	14.3	---	43.1	51.6
1983	---	---	---	---	---	---	---	---	---
1984	53.5	40.5	65.7	55.6	26.6	13.3	---	44.1	53.5
1985	54.9	39.8	68.3	58.8	29.8	14.3	---	46.3	54.3
1986	54.7	40.9	66.9	62.1	26.2	12.5	---	47.5	55.1
1987	58.9	45.7	70.6	62.7	29.0	13.1	---	48.9	56.2

Table 17 cont.
Female Labour Force Participation Rates
By Age Groups
Selected Provinces and Canada
1976-1987

C. **Newfoundland**
Female Labour Force Participation Rates
1976-1987

	15-24	15-19	20-24	25-54	55-64	55+	65+	Provincial Total	Total Canada
1976	42.9	33.7	52.9	34.9	---	---	---	32.0	45.0
1977	46.7	36.5	57.6	37.4	---	---	---	34.4	45.9
1978	---	---	---	---	---	---	---	---	---
1979	45.6	35.2	57.4	42.0	---	---	---	36.2	48.9
1980	46.1	34.0	59.7	44.9	---	9.4	---	37.9	50.3
1981	46.2	33.9	59.7	46.1	18.0	9.6	---	38.5	51.6
1982	45.2	31.0	60.8	49.7	19.0	9.5	---	39.9	51.6
1983	---	---	---	---	---	---	---	---	---
1984	44.5	29.1	61.4	52.2	18.5	9.7	---	41.0	53.5
1985	43.0	26.9	59.7	54.8	18.9	9.0	---	41.8	54.3
1986	44.4	26.8	62.2	55.5	18.2	8.8	---	42.6	55.1
1987	43.3	25.2	61.2	56.8	18.1	8.7	---	43.0	56.2

D. **Prince Edward Island**
Female Labour Force Participation Rates
1976-1987

	15-24	15-19	20-24	25-54	55-64	55+	65+	Provincial Total	Total Canada
1976	55.9	---	65.8	49.1	---	---	---	42.0	45.0
1977	54.4	---	66.1	53.5	---	---	---	43.3	45.9
1978	---	---	---	---	---	---	---	---	---
1979	59.2	---	71.8	57.6	---	---	---	46.2	48.9
1980	56.3	---	65.9	59.5	---	---	---	46.7	50.3
1981	56.9	---	69.4	61.0	---	---	---	47.2	51.6
1982	56.2	---	68.8	59.8	---	---	---	46.3	51.6
1983	---	---	---	---	---	---	---	---	---
1984	61.1	---	74.2	65.9	---	---	---	50.2	53.5
1985	62.3	---	76.2	69.5	---	---	---	51.9	54.3
1986	62.8	---	74.6	70.4	---	---	---	53.0	55.1
1987	60.8	---	74.6	72.2	---	---	---	53.5	56.2

Table 17 cont.

E. Saskatchewan
Female Labour Force Participation Rates
1976-1987

	15-24	15-19	20-24	25-54	55-64	55+	65+	Provincial Total	Total Canada
1976	54.8	47.6	62.5	51.3	36.3	19.0	---	43.0	45.0
1977	54.6	45.7	63.6	54.1	35.3	18.9	---	44.1	45.9
1978	---	---	---	---	---	---	---	---	---
1979	58.5	50.7	66.9	57.9	34.2	18.0	---	46.5	48.9
1980	60.3	51.6	69.5	57.6	35.3	18.3	---	46.8	50.3
1981	58.2	52.1	64.4	62.0	36.4	18.5	---	48.3	51.6
1982	61.4	52.1	70.5	63.6	25.9	18.2	---	49.6	51.6
1983	---	---	---	---	---	---	---	---	---
1984	63.3	53.2	71.9	67.5	38.2	18.9	---	52.4	53.5
1985	65.6	53.7	75.4	70.4	41.7	20.7	---	54.9	54.3
1986	66.0	55.2	74.8	72.9	43.5	21.1	---	56.3	55.1
1987	63.3	52.2	72.8	73.8	44.2	21.0	---	56.2	56.2

F. Manitoba
Female Labour Force Participation Rates
1976-1987

	15-24	15-19	20-24	25-54	55-64	55+	65+	Provincial Total	Total Canada
1976	59.1	48.5	69.8	53.8	36.3	18.7	---	45.4	45.0
1977	59.7	51.0	68.4	55.9	36.7	19.0	---	46.6	45.9
1978	---	---	---	---	---	---	---	---	---
1979	63.7	55.7	71.9	59.7	38.6	19.9	---	49.3	48.9
1980	66.5	58.7	74.5	62.2	39.8	20.2	---	51.1	50.3
1981	66.0	58.8	73.2	65.2	40.1	20.2	---	52.2	51.6
1982	68.5	59.3	77.2	67.1	40.1	20.5	---	53.7	51.6
1983	---	---	---	---	---	---	---	---	---
1984	67.3	56.9	76.1	70.0	40.1	19.5	---	54.6	53.5
1985	69.2	58.2	78.3	72.2	36.5	18.0	---	55.7	54.3
1986	68.8	59.0	77.0	73.1	39.5	19.4	5.1	56.4	55.1
1987	68.1	58.3	76.4	75.0	40.0	19.0	---	57.1	56.2

Note: data not available by province for 1978 or 1983 from the source listed below.

prior to 1976 rates were not available by sex, age group, or province; aggregate data was provided for regions.

Source: Statistics Canada, The Labour Force, Catalogue 71-001, annual averages in December issues, Ottawa: Supply and Services Canada. (1976-1987 data)

Table 18
Unemployment Rates, Aged 15+, by Sex
Selected Provinces and Canada, 1976-87

Summary

	Male				Female			
	1976	1981	1986	1987	1976	1981	1986	1987
Nova Scotia	9.2	9.6	13.0	12.1	10.2	11.0	14.0	13.1
New Brunswick	10.6	11.5	15.0	13.4	12.1	12.0	13.6	12.8
Newfoundland	13.5	14.1	19.5	17.3	13.7	14.1	20.7	20.4
PEI	16.9	11.4	13.0	12.7	9.8	11.4	13.9	14.2
Saskatchewan	3.2	4.0	7.7	7.0	5.5	5.7	7.6	7.8
Manitoba	4.4	5.6	7.6	7.8	5.0	6.5	7.7	6.9
Canada	6.3	7.0	9.4	8.5	8.4	8.3	9.9	9.4

A. **Unemployment Rates**
By Age and Sex
Nova Scotia, 1976-1987

Males

	15+	15-19	20-24	25-54	55+
1976	9.2	22.9	15.4	6.2	---
1981	9.6	20.3	16.9	7.2	---
1986	13.0	24.4	24.1	10.4	---
1987	12.1	21.3	20.3	10.2	---

Females

	15+	15-19	20-24	25-54	55+
1976	10.2	---	---	8.0	---
1981	11.0	18.0	14.1	9.3	---
1986	14.0	---	18.3	12.9	---
1987	13.1	---	19.2	11.7	---

B. **Unemployment Rates**
By Age and Sex
New Brunswick, 1976-1987

Males

	15+	15-19	20-24	25-54	
1976	10.6	21.6	15.5	8.0	---
1981	11.5	23.7	19.3	8.7	---
1986	15.0	27.8	24.6	.12.5	---
1987	13.4	---	22.9	11.3	---

Females

	15+	15-19	20-24	25-54	55+
1976	12.1	---	---	10.4	---
1981	12.0	---	---	10.0	---
1986	13.6	---	19.1	12.0	---
1987	12.8	---	17.5	11.8	---

Table 18 cont.

C. **Unemployment Rates By Age and Sex Newfoundland, 1976-1987**

Males

	15+	15-19	20-24	25-54	55+
1976	13.5	---	21.7	10.0	---
1981	14.1	33.8	22.1	9.9	---
1986	19.5	---	32.2	15.7	---
1987	17.3	---	30.0	14.0	---

Females

	15+	15-19	20-24	25-54	55+
1976	13.7	---	---	---	---
1981	14.1	---	---	10.6	---
1986	20.7	---	26.2	18.4	---
1987	20.4	---	26.3	18.1	---

D. **Unemployment Rates By Age and Sex Prince Edward Island, 1976-1986**

Males

	15+	15-19	20-24	25-54	55+
1976	9.8	---	---	---	---
1981	11.4	---	---	---	---
1986	13.0	---	---	---	---
1987	12.7	---	---	---	---

Females

	15+	15-19	20-24	25-54	55+
1976	9.8	---	---	---	---
1981	11.4	---	---	---	---
1986	43.9	---	---	---	---
1987	14.2	---	---	---	---

Table 18 cont.

E. Unemployment Rates By Age and Sex Saskatchewan, 1976-1987

Males

	15+	15-19	20-24	25-54	55+
1976	3.2	---	---	---	---
1981	4.0	---	---	2.4	---
1986	7.7	---	13.9	6.5	---
1987	7.0	---	13.6	5.6	---

Females

	15+	15-19	20-24	25-54	55+
1976	5.5	---	---	4.8	---
1981	5.7	---	---	4.7	---
1986	7.6	---	11.5	6.7	---
1987	7.8	---	---	6.9	---

F. Unemployment Rates By Age and Sex Manitoba, 1976-1987

Males

	15+	15-19	20-24	25-54	55+
1976	4.4	---	---	3.0	---
1981	5.6	13.9	9.0	4.0	---
1986	7.6	16.4	11.8	6.3	---
1987	7.8	16.2	13.4	6.0	---

Females

	15+	15-19	20-24	25-54	55+
1976	5.0	---	---	4.2	---
1981	6.5	---	---	5.3	---
1986	7.7	---	---	6.9	---
1987	6.9	---	---	6.1	---

Table 18 cont.

G. Unemployment Rates By Age and Sex Canada, 1976-1987

Males

	15+	15-19	20-24	25-54	55+
1976	6.3	16.3	11.1	4.3	---
1981	7.0	16.9	12.2	5.0	---
1986	9.4	18.2	15.5	7.7	---
1987	8.5	16.4	13.9	7.1	---

Females

	15+	15-19	20-24	25-54	55+
1976	8.4	15.1	9.8	7.0	---
1981	8.3	15.4	10.0	7.1	---
1986	9.9	15.2	12.9	8.9	---
1987	9.4	13.6	11.8	8.6	---

Sources: Statistics Canada (various years), The Labour Force, Catalogue 71-001, annual averages in December issues, Ottawa: Supply and Services Canada. (provincial data 1976-1986)

Statistics Canada (1987), Historical Labour Force Statistics - Actual data, Seasonal Factors, Seasonally Adjusted Data, Catalogue 71-201, Ottawa: Supply and Services Canada. (Canada data)

Table 19A
Life Expectancy at Birth
Provinces and Canada, 1941-1984/85

Male

	1941	1946	1951	1956	1961	1966	1971	1976	1980-82	1984-86
NFLD						68.9	69.3	70.6	71.9	---
PEI	61.7	---	66.6	67.9	68.6	68.3	69.3	69.2	72.8	---
NS						68.3	68.7	69.5	70.9	---
NB						68.5	69.1	69.7	71.0	---
PQ	60.2	---	64.4	66.1	67.3	67.9	68.3	69.1	71.0	---
ONT	64.6	---	66.9	67.8	68.3	68.7	68.6	70.6	72.2	---
MAN						69.8	70.2	70.7	72.2	---
SASK	65.4	---	68.4	69.3	69.8	70.5	71.1	71.7	72.4	---
ALTA						70.1	70.4	71.7	71.9	---
BC	63.7	---	66.7	68.1	68.9	69.2	69.9	71.0	72.6	---
YUKON	---	---	---	---	---	---	---	---	---	---
NWT	---	---	---	---	---	---	---	---	---	---
CANADA	63.0	---	66.3	67.6	68.4	68.8	69.3	70.2	71.8	73.0

Female

	1941	1946	1951	1956	1961	1966	1971	1976	1980-82	1984-86
NFLD						74.4	75.7	77.4	78.6	---
PEI	64.6	---	70.5	72.9	73.9	75.5	77.4	78.2	80.4	---
NS						74.8	76.0	77.8	78.3	---
NB						75.3	76.4	77.7	79.1	---
PQ	63.1	---	68.6	71.0	72.8	73.9	75.3	76.5	78.7	---
ONT	68.4	---	71.9	73.6	74.4	75.5	76.8	77.7	79.0	---
MAN						76.1	76.9	77.9	78.7	---
SASK	68.2	---	72.3	74.2	75.7	76.5	77.3	78.6	79.6	---
ALTA						76.2	77.3	77.9	79.0	---
BC	69.0	---	72.4	73.9	75.4	75.8	76.7	78.4	79.5	---
YUKON	---	---	---	---	---	---	---	---	---	---
NWT	---	---	---	---	---	---	---	---	---	---
CANADA	66.3	---	70.8	72.9	74.2	75.2	76.4	77.5	78.9	79.8

Note: Prior to 1966, the Atlantic provinces and the Praire provinces were described as regions rather than as individual provinces.

Sources: Statistics Canada (1980), Vital Statistics: Volume III Deaths, Catalogue 84-206, Ottawa: Supply and Services Canada. (1941-1976)

Statistics Canada (1984), Life Tables Canada and Provinces 1980-82, Catalogue 84-532, Ottawa: Supply and Services Canada. (1980-82)

unpublished data, Vital Statistics Section, Health Division, Statistics Canada. (1984-86)

Table 19B
International Comparison of Life Expectancy at Birth
By Sex
OECD Countries, 1980's

	Males	1980s (Year)	Females
Australia	72.2	(83)	79.0
Austria	69.5	(83)	76.6
Belgium	69.9	(79)	76.6
Canada	**72.0**	**(82)**	**79.0**
Denmark	71.8	(82)	77.9
Finland	70.2	(83)	78.5
France	70.9	(81)	79.1
Germany	71.3	(84)	78.1
Greece	73.6	(82)	78.3
Iceland	73.4	(83)	80.6
Ireland	70.1	(81)	75.8
Italy	71.0	(80)	77.7
Japan	74.8	(84)	80.7
Luxembourg	68.9	(82)	76.0
Netherlands	73.0	(83)	79.8
New Zealand	70.8	(83)	77.0
Norway	72.8	(83)	79.8
Portugal	69.1	(82)	76.1
Spain	71.8	(79)	78.0
Sweden	73.5	(82)	79.6
Switzerland	73.8	(84)	80.8
Turkey	58.3	*	62.8
United Kingdom**	71.3	(82)	77.3
United States	70.9	(82)	78.4

Note: OECD is the Organisation for Economic Co-operation and Development.
* 1976-80
** "United Kingdom" denotes England and Wales.

Source: OECD, 1987, Financing and Delivering Health Care: A Comparative Analysis of OECD Countries, Paris.

Table 19C
Life Expectancy at Age 65, 75 and 85
Males and Females
Selected Provinces and Canada
1970/72, 1975/77 and 1980/82

65 Years of Age

	Males			Females		
	1970/72	1975/77	1980/82	1970/72	1975/77	1980/82
CND	13.72	13.95	14.57	17.47	18.00	18.85
NFLD	13.52	13.86	14.57	16.91	17.51	18.26
NS	13.58	13.47	14.14	17.14	18.54	18.25
NB	13.78	14.54	14.59	17.56	18.38	19.09
PEI*	14.40	14.41	14.87	18.41	19.31	19.75
SASK	15.44	15.03	15.49	18.54	19.40	19.52
MAN	14.32	14.59	14.92	18.02	18.64	19.01

75 Years of Age

	Males			Females		
	1970/72	1975/77	1980/82	1970/72	1975/77	1980/82
CND	8.47	8.55	9.00	10.63	11.03	11.78
NFLD	8.15	8.40	9.01	10.30	10.72	11.25
NS	8.44	8.22	8.70	10.33	11.73	11.47
NB	8.51	9.22	9.07	10.74	11.55	12.17
PEI*	9.00	8.80	9.33	11.16	11.97	12.37
SASK	9.70	9.08	9.54	11.28	11.97	12.07
MAN	8.83	8.96	9.25	8.16	11.48	11.93

85 Years of Age

	Males			Females		
	1970/72	1975/77	1980/82	1970/72	1975/77	1980/82
CND	4.74	4.73	5.14	5.67	5.81	6.45
NFLD	3.78	4.00	5.11	5.90	5.79	6.29
NS	4.92	4.01	4.98	5.10	7.22	6.13
NB	4.39	6.04	5.54	5.99	7.01	7.31
PEI*	5.31	5.36	5.84	6.14	6.60	7.07
SASK	6.17	4.85	5.04	5.64	6.68	6.26
MAN	4.97	5.07	5.26	5.90	6.09	6.41

Note: due to the population size of PEI, life tables are available, not for single years, but rather for 5 year cohorts. Therefore, instead of representing people, 65, 75 and 85, PEI data represent people aged 65-69, 75-79 and 85-89.

Source: Statistics Canada, (various years), Life Tables, Canada and Provinces, Catalogue 84-532 Occassional, Ottawa: Supply and Services Canada.

Table 20
Age Standardized Death Rates* per 1,000 Population
All Causes
Selected Provinces and Canada
1921-1986

Males

	CANADA	NFLD	PEI	NS	NB	SASK	MAN
1921	13.3	---	12.9	13.2	15.5	10.5	12.4
1926	14.3	---	9.6	12.0	13.8	11.1	12.1
1931	12.7	---	9.7	11.9	12.7	10.0	10.8
1936	12.0	---	10.3	11.5	12.7	9.7	11.3
1941	12.0	---	11.0	12.8	12.9	9.6	11.2
1946	10.7	---	8.6	10.3	11.1	9.4	10.0
1951	10.0	9.3	8.3	9.3	10.0	8.4	9.2
1956	9.4	9.0	8.7	8.6	9.0	7.9	8.8
1961	9.0	8.2	8.2	8.7	8.7	7.8	8.3
1966	8.8	8.4	8.6	8.8	8.5	7.5	8.3
1971	8.4	8.2	8.1	8.8	8.6	7.3	7.9
1976	8.1	8.0	8.4	8.4	8.3	7.5	7.5
1986	6.8	6.8	7.3	7.3	7.1	6.4	6.7

Females

	CANADA	NFLD	PEI	NS	NB	SASK	MAN
1921	12.4	---	12.5	11.9	14.7	10.3	11.6
1926	13.4	---	9.3	11.7	13.9	11.0	11.5
1931	11.7	---	9.0	11.3	12.1	10.0	10.0
1936	11.0	---	9.6	10.2	11.7	9.3	10.9
1941	10.3	---	10.5	10.9	11.3	8.7	9.3
1946	9.0	---	7.2	8.7	9.9	8.1	8.8
1951	8.0	8.5	6.5	7.3	8.5	7.1	7.4
1956	7.0	7.7	6.0	6.4	7.3	6.1	6.4
1961	6.3	7.2	6.0	6.1	6.5	5.3	5.7
1966	5.7	6.0	5.8	5.8	5.7	5.1	5.4
1971	5.2	5.6	4.7	5.3	5.1	4.5	5.0
1976	4.8	5.1	4.6	5.0	4.8	4.3	4.7
1986	4.1	4.4	4.0	4.2	4.1	3.8	4.1

Note: rates are age standardized to the 1956 population.

Source: Statistics Canada (1976), Vital Statistics Volume III Deaths, Catalogue 84-206, Ottawa: Supply and Services Canada.

Statistics Canada (1986), Vital Statistics Volume I Births and Deaths, Catalogue 84-204, Ottawa: Supply and Services Canada.

Table 21A
Number of Deaths and Rates per 1,000 Population
Selected Provinces and Canada
1976 and 1986

	1976		1986	
Number of Deaths	Males	Females	Males	Females
Canada	96,725	70,284	100,969	83,255
Newfoundland	1,952	1,371	1,998	1,542
PEI	634	461	629	492
Nova Scotia	3,992	2,963	4,020	3,235
New Brunswick	3,032	2,170	3,052	2,406
Saskatchewan	4,798	3,011	4,633	3,428
Manitoba	4,698	3,564	4,880	4,031

	1976		1986	
Death Rates*	Males	Females	Males	Females
Canada	8.1	4.8	6.8	4.1
Newfoundland	8.0	5.1	6.8	4.4
PEI	8.4	4.6	7.3	4.0
Nova Scotia	8.4	5.0	7.3	4.2
New Brunswick	8.3	4.8	7.1	4.1
Saskatchewan	7.5	4.3	6.4	3.8
Manitoba	7.5	4.7	6.7	4.1

Note: Death rates are age standardized to 1956 census population.

Source: Statistics Canada (1986), Mortality Summary List of Causes, Vital Statistics Volume III, Catalogue 84-206, Ottawa: Supply and Services Canada. (numbers)

Statistics Canada (1986), Vital Statistics Volume I Births and Deaths, Catalogue 84-204, Ottawa: Supply and Services Canada. (rates)

Statistics Canada (1976), Vital Statistics Volumee III Deaths, Catalogue 84-206, Ottawa: Supply and Services Canada. (rates)

Statistics Canada (1976), Causes of Death Provinces by Sex and Canada by Sex and Age, Catalogue 84-203, Ottawa: Industry, Trade and Commerce. (numbers)

Table 21B
International Comparison of Death Rates per 100,000 Aged Standardized to European Population Various Years, 1980-1984

Country	Year	Sex	Infectious & Parasitic Diseases (01-07)	Malignant Neoplasm (08-14)	Diseases of the Circulatory System (25-30)	Diseases of the Respiratory System (31-32)	Diseases of the Digestive System (33-34)	Injury & Poisoning (E47-E56)	All Causes
Australia	1983	T	4.2	191.5	414.0	58.4	27.9	50.5	820.8
		M	5.5	249.8	526.0	96.4	36.8	73.6	1 073.5
		F	3.3	150.7	323.6	35.1	20.7	28.5	628.3
Austria	1984	T	4.5	209.3	468.5	43.6	54.3	80.6	934.4
		M	7.3	276.3	593.1	69.1	80.7	120.9	1 229.9
		F	2.5	171.0	387.1	30.1	34.4	44.6	736.3
Belgium	1984	T	6.4	229.7	375.4	64.0	35.8	68.2	918.9
		M	8.3	323.0	481.6	112.0	44.0	91.3	1 214.5
		F	5.0	166.2	298.4	33.4	29.0	46.3	705.0
Canada	1984	T	4.3	199.1	339.6	55.3	29 4	56.0	761.8
		M	5.2	254.2	445.4	86.7	37.2	81.9	1 002.5
		F	3.7	159.3	255.7	34.9	22.9	31.7	575.9
Denmark	1984	T	3.2	234.3	388.0	62.0	28.7	69.3	884.2
		M	3.8	281.1	510.9	88.4	36.0	87.3	1 127.0
		F	2.6	203.4	293.5	44.7	22.2	51.8	699.6
Finland	1983	T	7.9	186.7	476.5	69.1	23.7	75.7	912.9
		M	11.2	264.2	654.8	117.4	31.0	121.5	1 277.3
		F	6.1	144.1	356.1	44.0	17.9	36.7	674.2
France	1983	T	10.5	205.5	274.7	51.5	54.0	83.4	825.4
		M	14.3	300.6	355.8	80.1	74.5	116.4	1 121.0
		F	7.9	136.4	215.3	34.5	37.5	52.4	604.0
Germany	1984	T	6.0	205.2	423.0	52.1	43.7	55.1	877.4
		M	8.4	274.0	556.5	87.9	60.6	75.8	1 172.1
		F	4.5	166.5	339.3	33.7	31.3	36.0	691.2
Greece	1983	T	7.4	160.5	366.2	52.6	30.3	48.7	817.6
		M	9.7	217.0	402.9	66.1	39.8	68.3	962.1
		F	5.6	114.5	332.2	41.9	22.3	29.9	692.2
Iceland	1983	T	4.1	188.1	360.6	66.6	16.1	64.1	750.4
		M	4.2	222.1	505.1	80.2	15.6	95.4	977.3
		F	4.4	162.7	231.6	56.0	16.8	33.1	552.4
Ireland	1982	T	8.3	209.7	536.6	136.9	27.3	50.7	1 054.4
		M	11.5	247.2	674.8	180.3	31.3	72.0	1 312.4
		F	5.5	181.6	420.8	105.2	24.2	29.5	843.3
Italy	1981	T	5.2	197.7	401.7	62.7	52.5	48.7	869.5
		M	7.3	269.3	490.5	96.4	76.9	70.0	1 123.3
		F	3.6	143.6	333.8	40.3	32.8	28.7	675.0
Japan	1984	T	10.7	164.7	285.7	62.5	35.3	49.7	699.4
		M	15.5	226.2	344.9	92.7	48.1	73.0	898.7
		F	7.2	120.0	242.2	43.0	24.6	28.5	550.2
Luxembourg	1982	T	5.0	256.6	467.6	41.8	55.0	86.1	1 028.4
		M	6.5	372.8	590.0	63.9	64.1	124.4	1 358.7
		F	3.7	179.8	380.2	28.1	46.3	53.4	793.7
Netherlands	1984	T	4.2	220.9	341.2	53.2	27.6	40.4	784.5
		M	5.2	308.0	457.0	86.3	32.7	52.9	1 054.7
		F	3.5	160.9	254.5	32.8	23.5	28.7	588.2
New Zealand	1983	T	4.9	213.7	442.3	104.3	23.9	52.8	922.5
		M	5.7	260.7	577.4	150.8	29.3	73.0	1 185.6
		F	4.2	181.9	338.8	74.9	19.7	32.8	726.8
Norway	1984	T	5.1	178.2	368.2	64.8	22.6	54.4	785.4
		M	6.3	223.5	496.4	86.6	27.4	97.5	1 030.8
		F	4.0	147.4	264.4	49.8	18.9	31.8	592.2
Portugal	1984	T	10.2	154.0	422.0	68.4	50.2	73.2	978.0
		M	15.3	202.4	506.1	101.3	76.9	114.2	1 249.5
		F	6.1	120.8	360.2	46.2	29.1	36.6	773.3
Spain	1980	T	10.9	162.6	378.1	76.2	49.4	43.0	820.5
		M	14.7	221.6	445.1	109.7	70.6	64.6	1 038.7
		F	7.9	119.6	325.8	53.5	32.3	22.9	653.2
Sweden	1984	T	4.8	168.5	394.3	50.2	21.7	54.2	757.5
		M	5.9	202.2	517.7	69.3	28.0	77.9	977.7
		F	4.0	145.8	295.4	37.5	16.3	31.5	583.0
Switzerland	1984	T	4.7	194.9	314.3	33.5	25.7	68.0	711.7
		M	5.8	260.9	406.3	54.1	34.9	95.8	938.4
		F	4.0	149.7	245.7	20.1	18.0	42.0	541.8
United Kingdom*	1983	T	3.6	217.6	435.2	130.5	25.1	35.0	915.8
		M	4.5	279.1	569.6	185.2	28.0	46.5	1 189.3
		F	2.9	179.6	333.1	100.0	22.8	23.7	725.9
United States	1982	T	8.4	193.3	407.0	53.2	32.7	62.2	842.4
		M	10.4	247.1	531.4	81.4	41.7	95.1	1 107.0
		F	7.0	156.9	314.0	35.3	25.2	32.3	645.7
Mean		T	6.3	197.5	394.8	65.8	34.5	59.6	855.4
Range			7.7	102.6	261.9	103.4	38.9	51.1	355.0
Standard Deviation			2.5	25.7	62.4	25.5	12.3	14.0	94.6
Mean		M	8.4	260.1	506.1	97.5	45.5	86.5	1 114.0
Range			11.7	170.6	329.9	131.1	65.1	77.9	460.0
Standard Deviation			3.7	40.7	84.7	33.8	19.5	22.0	126.1
Mean		F	4.7	154.9	310.5	45.9	25.6	35.4	663.1
Range			5.4	88.9	205.5	85.1	30.0	30.5	301.5
Standard Deviation			1.6	23.1	54.0	21.1	7.5	8.9	82.4

Notes: * England and Wales. Numbers in parentheses refer to ICD-9 disease codes. Death rates are standardised on the basis of a European Standardised population. T - total population. M - males. F - females.

Source: World Health Statistics, 1983, 1984, 1985, World Health Organisation, Geneva, 1983, 1984, 1985. Updated statistics for several countries were provided by the World Health Organisation to the OECD Secretariat.

Table 15 in OECD, 1987, Financing and Delivering Health Care: A Comparative Analysis, Paris.

Table 22
Age Standardized Death Rates and Ranking
Selected Causes
Selected Provinces and Canada
1986

Males

	CND		NFLD		PEI		NS		NB		SASK		MAN	
	Rate	(Rank)	Rate	(Rank)	Rate	(Rank)	Rate	(Rank)	Rate	(Rank)	Rate	(Rank)	Rate	(Rank)
All Malignant Neoplasms	176.2	(2)	163.0	(2)	177.8	(2)	186.6	(2)	178.9	(2)	152.9	(2)	174.0	(2)
Diseases of the Heart	219.6	(1)	248.9	(1)	269.1	(1)	251.6	(1)	259.4	(1)	198.6	(1)	208.9	(1)
Cerebrovascular Disease	39.5	(5)	50.8	(4)	53.5	(5)	39.2	(5)	30.0	(5)	35.8	(5)	43.7	(5)
Respiratory Diseases	59.5	(4)	53.2	(3)	56.2	(4)	67.2	(3)	63.8	(4)	58.8	(4)	61.3	(4)
All Accidents and Adverse Effects	69.9	(3)	48.3	(5)	86.6	(3)	65.4	(4)	78.6	(3)	89.5	(3)	73.9	(3)

Females

	CND		NFLD		PEI		NS		NB		SASK		MAN	
	Rate	(Rank)	Rate	(Rank)	Rate	(Rank)	Rate	(Rank)	Rate	(Rank)	Rate	(Rank)	Rate	(Rank)
All Malignant Neoplasms	131.3	(2)	127.1	(2)	148.5	(2)	140.4	(2)	129.7	(2)	120.2	(2)	132.7	(2)
Diseases of the Heart	145.4	(1)	179.4	(1)	149.3	(1)	158.9	(1)	152.0	(1)	124.1	(1)	141.8	(1)
Cerebrovascular Disease	44.9	(3)	57.3	(3)	46.0	(3)	37.9	(4)	47.8	(3)	41.9	(3)	42.8	(3)
Respiratory Diseases	33.8	(4)	33.1	(4)	33.0	(4)	40.5	(3)	32.1	(4)	41.5	(4)	35.5	(4)
All Accidents and Adverse Effects	28.4	(5)	15.9	(5)	22.6	(5)	18.4	(5)	25.2	(5)	31.5	(5)	29.9	(5)

Source: Statistics Canada (1986), Mortality Summary List of Causes Vital Statistics Volume III, Catalogue 84-206, Ottawa: Supply and Services Canada.

Table 23A
PYLL Rate per 100,000 (and Rank)
Leading Causes of Death
Selected Provinces and Canada, 1982 to 1986

Males Under Age 75

	Canada	(Rank)	NS	(Rank)	NB	(Rank)	NFLD	(Rank)	PEI	(Rank)	SASK	(Rank)	MAN	(Rank)
All Causes	9405	--	10032	--	10172	--	9577	--	9907	--	9923	--	9641	--
Cor. Heart Disease	1618	(1)	1916	(1)	1775	(1)	1794	(1)	1990	(1)	1385	(2)	1589	(1)
Car Accidents	1011	(2)	1174	(2)	1381	(2)	782	(2)	1429	(2)	1434	(1)	824	(2)
Suicide	784	(3)	688	(3)	777	(3)	346	(6)	612	(4)	910	(3)	806	(3)
Lung Cancer	603	(4)	636	(4)	664	(4)	641	(3)	686	(3)	460	(5)	547	(4)
Perinatal Mortality	465	(5)	414	(5)	472	(6)	557	(4)	334	(6)	553	(4)	544	(5)
Congenital Anom.	402	(6)	403	(6)	488	(5)	516	(5)	393	(5)	433	(6)	440	(6)
Stroke	238	(7)	256	(7)	238	(7)	257	(8)	276	(7)	184	(7)	270	(7)
Cancer Large Intest.	197	(8)	213	(8)	219	(8)	260	(7)	220	(8)	150	(10)	212	(8)
Cirrhosis	186	(9)	126	(10)	138	(10)	81	(13)	64	(13)	177	(9)	165	(10)
Emphysema	151	(10)	186	(9)	198	(9)	204	(9)	188	(9)	145	(11)	101	(14)
Lymphoid Cancer	125	(11)	118	(12)	119	(11)	92	(12)	138	(11)	135	(12)	115	(11)
Leukemia	121	(12)	121	(11)	100	(12)	107	(10)	144	(10)	128	(13)	113	(12)
Homicide	120	(13)	96	(14)	80	(14)	14	(14)	41	(14)	182	(8)	193	(9)
Brain Cancer	108	(14)	102	(13)	94	(13)	94	(11)	79	(12)	124	(14)	110	(13)

Note: Standard Population, Canada 1981

Source: Health and Welfare Canada (November 1988), Chronic Diseases in Canada, Volume 9, No. 6, Ottawa: Laboratory Centre for Disease Control, Table 1, p. 99.

Table 23B
PYLL Rate per 100,000 (and Rank)
Leading Causes of Death
Selected Provinces and Canada, 1982 to 1986

Females Under Age 75

	Canada	(Rank)	NS	(Rank)	NB	(Rank)	NFLD	(Rank)	PEI	(Rank)	SASK	(Rank)	MAN	(Rank)
All Causes	4972	--	5094	--	4953	--	5032	--	4702	--	5231	--	5297	--
Cor. Heart Disease	439	(1)	496	(1)	482	(1)	629	(1)	401	(1)	324	(4)	431	(2)
Breast Cancer	375	(2)	425	(3)	364	(4)	326	(4)	385	(2)	321	(5)	378	(3)
Car Accidents	364	(3)	397	(4)	410	(2)	214	(5)	352	(3)	519	(1)	334	(5)
Congenital Abnom.	363	(4)	443	(2)	407	(3)	411	(3)	320	(4)	412	(2)	433	(1)
Perinatal Mortality	357	(5)	358	(5)	338	(5)	429	(2)	246	(5)	404	(3)	360	(4)
Lung Cancer	235	(6)	265	(6)	211	(6)	150	(8)	217	(6)	213	(6)	223	(6)
Suicide	199	(7)	123	(9)	131	(9)	45	(14)	194	(7)	200	(7)	180	(8)
Stroke	191	(8)	151	(8)	180	(7)	201	(7)	175	(8)	184	(8)	199	(7)
Ca. Large Instest.	158	(9)	181	(7)	175	(8)	210	(6)	118	(10)	160	(9)	162	(9)
Leukemia	87	(10)	84	(11)	87	(11)	81	(9)	58	(13)	81	(12)	70	(13)
Cirrohosis	81	(11)	57	(13)	49	(14)	60	(12)	66	(12)	99	(10)	107	(10)
Lymphoid Cancer	77	(12)	80	(12)	59	(12)	63	(11)	92	(11)	75	(13)	83	(12)
Emphysema	76	(13)	102	(10)	88	(10)	59	(13)	122	(9)	67	(14)	62	(14)
Brain Cancer	73	(14)	51	(15)	44	(15)	79	(10)	39	(14)	84	(11)	46	(15)
Homicide	65	(15)	55	(14)	58	(13)	11	(15)	--	(15)	63	(15)	92	(11)

Note: Standard Population, Canada 1981

Source: Health and Welfare Canada (November 1988), Chronic Diseases in Canada, Volume 9, No. 6, Ottawa: Laboratory Centre for Disease Control, Table 2, p. 99.

Table 24
Prevalence of Major Risk Factors by Region
By Sex and Age (35-64)
Various Years, 1978-79 and 1983

	Sex	Atl.	Que.	Ont.	Pra.	B.C.	Canada	(range)
1. Current Cigarette Smoking	M	**39.5**	41.4	37.3	34.9	28.4	37.1	28.4-42.5
	F	**30.7**	31.3	29.1	29.0	28.8	29.8	23.6-33.9
2. High Blood Pressure (5th phase diastolic pressure ≥ 95)	T	(12.3)	13.9	(11.9)	7.4	---	11.1	7.4-13.9
3. High Serum Cholesterol (≥ 240 mg/dL)	M	**27.5**	26.4	27.4	27.9	24.9	26.9	24.9-27.9
	F	30.8	23.3	21.1	25.6	22.2	23.3	21.1-30.8
4. Obesity (body mass > 32)	T	11.7	(11.3)	(9.3)	10.7	---	9.8	9.3-11.7
5. Alcohol (2+ drinks per day)	M	13.9	15.4	21.1	18.7	24.9	19.0	13.9-24.9
	F	---	(3.0)	(5.2)	6.3	(8.7)	4.9	3.0-8.7
6. Sedentary	M	35.6	28.0	26.6	22.0	19.6	26.2	19.6-35.6
	F	19.3	17.7	14.4	11.5	(9.6)	14.7	9.6-19.3

Notes: --- sample size too small.
( ) Sampling error is 20 to 40% of cell entry; including all (range) entries.
Atl. = Altantic provinces.
Pra. = 3 Prairie provinces.
• highest or lowest in the Canadian Range.
Bolding is above the Canadian average.
Boxed indicates the highest in Canada.

Sources: 1. Wayne Millar, unpublished tabulation, 1983 Canadian Labour Force Survey.
2-6. Bill Bradley, unpublished tabulations, Canada Health Survey, 1978-79.

Cited in Health and Welfare Canada (June 1987), Chronic Diseases in Canada, Volume 8, No. 1, Ottawa: Laboratory Centre for Disease Control.

Table 25
Provincial Disparities in Risk of Premature Death
Excess Deaths Prior to Age 75 Relative to Saskatchewan
1979-1983

	Number (1)	% of All Deaths (2)
Nova Scotia	3,010	15.8
New Brunswick	1,721	12.0
Newfoundland	678	6.9
Prince Edward Island	57	2.4
Saskatchewan	---	---
British Columbia	1,424	2.6
Alberta	1,594	4.3
Manitoba	1,690	7.7
Ontario	11,766	6.8
Quebec	18,830	14.1
Yukon	219	42.6
Northwest Territories	402	43.3
CANADA	41,391	8.5

Note: (1) Difference between observed and expected number of deaths where the latter is based on sex/age-specific death rates for Saskatchewan, 1979-1983.

(2) Excess deaths as percent of all deaths prior to age 75.

Source: Health and Welfare Canada (June 1987), Chronic Diseases in Canada, Volume 8, No. 1, Ottawa: Laboratory Centre for Disease Control.

Table 26
Historical Trends of Infant Mortality Rates
Males and Females
Selected Provinces and Canada
1921-1986

Rate per 1,000 Live Births

	NFLD	PEI	NS	NB	SASK	MAN	CANADA
1921	107.8	83.5	100.7	113.3	80.6	83.0	102.1
1926	94.5	70.2	80.3	105.9	81.1	76.5	101.6
1931	135.9	68.1	78.7	87.4	68.6	64.3	86.0
1936	112.5	69.3	66.1	76.7	53.9	60.6	67.7
1941	97.6	79.6	65.3	76.3	51.2	53.2	61.1
1946	73.7	34.7	45.9	65.5	46.8	47.1	47.8
1951	54.3	33.9	34.7	51.9	31.1	33.0	38.5
1956	43.3	39.5	29.0	39.6	28.3	30.8	31.9
1961	37.7	32.8	27.8	26.2	25.8	25.2	27.2
1966	28.0	25.9	25.2	24.1	24.2	21.3	23.1
1971	22.9	21.9	18.6	16.7	20.2	17.5	17.5
1976	14.6	14.4	13.8	13.2	14.3	15.6	13.5*
1981	9.7	13.2	11.5	10.9	11.8	11.9	9.6
1986	8.0	6.7	8.4	8.3	9.0	9.2	7.9

Note: * estimate.

Source: Statistics Canada (1986), Births and Deaths Vital Statistics Volume I, Catalogue 84-204, Ottawa: Supply and Services Canada.

Statistics Canada (1981), Births and Deaths Vital Statistics Volume I, Catalogue 84-204, Ottawa: Supply and Services Canada.

Statistics Canada (1976), Mortality Summary List of Causes Vital Statistics Volume III, Catalogue 84-206, Ottawa: Supply and Services Canada.

Table 27A
Infant Deaths by Age* and Sex
Selected Provinces and Canada
1981 and 1986

Males
Rate per 1,000 Live Births

		NFLD	PEI	NS	NB	SASK	MAN	CND
Infants Under 1 year								
	1986	9.4	8.2	10.0	9.2	10.3	9.6	8.7
	1981	17.8	17.2	14.0	12.8	15.1	12.4	10.8
Perinatal								
	1986	9.6	8.2	10.7	10.9	8.8	10.0	9.1
	1981	10.2	18.2	14.9	14.1	13.5	11.7	11.5
Neonatal								
	1986	5.5	6.2	6.7	6.8	6.3	6.9	5.8
	1981	8.7	12.9	9.1	10.0	8.5	7.6	7.2
Post-Neonatal								
	1986	3.9	2.0	3.3	2.4	4.0	2.7	2.9
	1981	3.1	4.3	4.9	2.7	6.5	4.7	3.5

Females
Rate per 1,000 Live Births

		NFLD	PEI	NS	NB	SASK	MAN	CND
Infants Under 1 year								
	1986	6.6	5.2	6.8	7.3	7.5	8.8	7.0
	1981	7.5	9.3	8.9	8.8	8.3	11.4	8.4
Perinatal								
	1986	8.6	6.3	9.0	9.2	7.5	7.9	7.7
	1981	10.1	8.2	11.4	10.5	9.0	12.0	9.9
Neonatal								
	1986	5.0	3.2	5.6	4.6	4.6	5.4	4.4
	1981	4.9	6.2	6.1	6.4	4.3	7.5	5.4
Post-Neonatal								
	1986	1.5	2.1	1.2	2.7	2.9	3.4	2.6
	1981	2.6	3.1	2.9	2.4	4.0	3.8	2.9

Note: Infants under 1 year = perinatal and post-neonatal.
Perinatal = prebirth.
Neonatal = less than 1 day to 27 days.
Post-neonatal = 28 days to one year.

Source: Statistics Canada (1986), Births and Deaths Vital Statistics Volume I, Catalogue 84-204, Ottawa: Supply and Services Canada.

Statistics Canada (1981), Births and Deaths Vital Statistics Volume I, Catalogue 84-204, Ottawa: Supply and Services Canada.

Table 27B
International Comparison of Infant Death Rates
By Sex
OECD Countries, 1980's

	Males	1980s (Year)	Females
Australia	10.5	(83)	8.7
Austria	13.4	(83)	10.0
Belgium	13.4	(79)	11.2
Canada	**10.4**	**(82)**	**7.8**
Denmark	9.5	(82)	6.9
Finland	6.5	(83)	5.8
France	11.2	(81)	8.2
Germany	10.6	(84)	8.9
Greece	16.4	(82)	13.6
Iceland	7.8	(82)	6.2
Ireland	11.2	(81)	9.3
Italy	17.1	(79)	13.8
Japan	6.6	(84)	5.6
Luxembourg	12.3	(82)	12.9
Netherlands	9.2	(83)	7.5
New Zealand	14.1	(83)	11.6
Norway	8.7	(83)	7.0
Portugal	22.1	(82)	17.3
Spain	16.1	(79)	12.6
Sweden	7.1	(82)	6.5
Switzerland	8.0	(84)	6.2
Turkey	---	---	---
United Kingdom*	12.2	(82)	9.4
United States	12.8	(82)	10.2

Note: OECD is the Organisation for Economic Co-operation and Development.

* "United Kingdom" denotes England and Wales.

Source: OECD, 1987, Financing and Delivering Health Care: A Comparative Analysis of OECD Countries, Paris.

Table 28
Disability Status
By Age and Sex
Selected Provinces and Canada
October 1983 - June 1984

Percent Disabled

	Canada	Nova Scotia	New Brunswick	Newfoundland	PEI	Saskatchewan	Manitoba
Both Sexes							
Age Stnd	12.8%	14.3%	14.1%	13.8%	10.8%	14.4%	13.0%
All Ages	12.8%	14.9%	14.0%	12.4%	12.0%	15.8%	13.9%
15-24	3.8%	3.9%	3.9%	3.4%	--	4.1%	4.6%
25-34	5.3%	5.0%	6.0%	6.3%	--	5.6%	6.0%
35-54	9.9%	12.7%	11.8%	10.1%	--	10.7%	9.5%
55-64	24.7%	27.6%	27.1%	26.8%	--	25.6%	21.4%
65+	38.6%	41.5%	41.4%	43.5%	40.0%	47.0%	42.0%
Males							
All Ages	11.8%	14.3%	14.0%	12.5%	11.1%	15.2%	12.1%
15-24	3.6%	--	--	--	--	--	---
25-34	5.0%	--	--	--	--	6.3%	4.8%
35-54	9.2%	11.8%	11.8%	9.8%	--	10.1%	8.2%
55-64	24.7%	27.8%	28.6%	28.6%	--	27.3%	19.6%
65+	37.9%	41.5%	41.9%	47.6%	--	47.2%	40.4%
Females							
All Ages	13.7%	15.4%	14.0%	12.9%	12.8%	16.5%	15.6%
15-24	4.1%	--	--	--	--	4.8%	5.7%
25-34	5.6%	5.6%	--	--	--	5.1%	7.1%
35-54	10.7%	13.4%	11.7%	10.2%	--	11.2%	10.7%
55-64	24.8%	27.5%	22.6%	25.0%	--	26.1%	23.1%
65+	39.2%	41.5%	38.5%	41.7%	--	46.8%	43.3%

Source: Statistics Canada (1986), Report of the Canadian health and disability survey 1983-1984, Catalogue 82-555E, Ottawa: Supply and Services Canada, Table 1, p. 21-25.

Table 29
Disability Status
By Location, Age and Sex
Selected Regions and Canada
October 1983 - June 1984

Urban and Rural Location
Percent Disabled

	Canada	Atlantic Region	Prairie Region
Location Total			
All Ages	12.8%	13.8%	12.8%
15-34	4.6%	4.5%	4.6%
35-54	9.9%	11.3%	9.7%
55-64	24.7%	26.7%	24.2%
65+	38.6%	41.5%	42.6%
Urban			
All Ages	11.9%	12.9%	11.9%
15-34	4.4%	4.4%	4.9%
35-54	9.2%	10.8%	9.3%
55-64	22.8%	26.1%	22.8%
65+	36.9%	39.6%	42.0%
Rural and Special Areas			
All Ages	15.0%	14.6%	14.3%
15-34	4.9%	4.7%	4.2%
35-54	11.6%	11.8%	10.2%
55-64	29.2%	27.4%	25.3%
65+	42.2%	42.7%	42.9%

Source: Statistics Canada (1986), Report of the Canadian health and disability survey 1983-1984, Catalogue 82-555E, Ottawa: Supply and Services Canada.

Table 30
Self Assessed Health Status
Selected Provinces and Canada
Aged 15+
1985

"In general, compared to other persons your age would you say your health is:"

	Excellent	Very Good	Good	Fair	Poor
Canada	25.0%	35.8%	26.9%	9.3%	3.0%
Nova Scotia	16.4%	37.9%	29.8%	13.0%	*2.9%
New Brunswick	19.0%	32.9%	31.2%	13.5%	*3.3%
Newfoundland	20.6%	43.3%	24.4%	8.5%	*3.2%
PEI	18.8%	43.7%	25.8%	9.7%	*2.0%
Saskatchewan	18.1%	37.6%	30.2%	11.5%	*2.6%
Manitoba	21.3%	36.3%	30.5%	9.6%	*2.2%

Note: * high sampling variability.

Source: Health and Welfare Canada (1988), Canada's Health Promotion Survey: Technical Report, Eds., Irving Rootman, Reg Warren, Thomas Stephens and Larry Peters, Ottawa: Supply and Services Canada, Health Status Table 3, p. 190.

Table 31
Use of Corrective Aids
by Province of Residence
Selected Provinces and Canada, 1983-84

	Seeing	Hearing	Mobility
Canada	75.8%	28.1%	29.2%
Nova Scotia	76.9%	21.7%	21.2%
New Brunswick	80.0%	26.3%	23.4%
Newfoundland	75.0%	--	22.2%
Saskatchewan	82.4%	25.0%	27.8%
Manitoba	85.7%	29.0%	32.4%

Note: Figures are percentages of all persons in each province reporting that nature of disability.

Figures for Prince Edward Island were too small to allow for reliable estimates.

Source: Statistics Canada (1986), Report of the Canadian Health and Disability Survey 1983-1984, Catalogue 82-555E, Ottawa: Supply and Services Canada, Text Table 4.1, p. 57.

Table 32
Aquired Immunodeficiency Syndrome
(AIDS)
Frequency and Cumulative Frequency of Report Cases
By Date of Diagnosis
Canada, 1979-1987

	Frequency	Cumulative Frequency
1979	1	1
1980	4	5
1981	6	11
1982	22	33
1983	54	87
1984	147	234
1985	324	558
1986	481	1039
1987	615	1654
1988	76*	1730

Note: These figures differ slightly from those in the Future Health 1987 Report because a different source is being used so that more detailed data can be examined.

* 1988 represents reporting for the first quarter only.

Source: Federal Centre on AIDS (May 1988), Surveillance Update: AIDS in Canada, p. 1 and 6.

Table 33
AIDS in Canada
Geographic Distribution (1)
(May 1988)

	Male	Female	Total	(%)	Deaths	Rate/Mill. Pop (2) Cummulative
Nova Scotia	28	2	30	1.7%	12	34.0
New Brunswick	7	1	8	0.5%	6	11.1
Newfoundland (3)	---	---	7	0.4%	4	12.1
PEI	2	0	2	0.1%	1	15.7
Saskatchewan (3)	---	---	22	1.3%	16	21.6
British Columbia	327	7	334	19.3%	182	115.4
Alberta	94	6	100	5.8%	58	42.5
Manitoba	25	0	25	1.4%	13	23.4
Ontario	655	17	672	38.8%	398	74.0
Quebec	456	73	529	30.6%	275	80.3
NWT (3)	---	---	1	0.1%	0	19.2
Yukon	0	0	0	0.0%	0	0.0
CANADA	---	---	1730	100.0%	965	68.2

Note: (1) Cases are attributed to the province where onset of the illness occured.
(2) Population estimates from Statistics Canada (July 1, 1985).
(3) Breakdown by sex is not available.

Source: Federal Centre for AIDS, Surveillance Update: AIDS in Canada, Ottawa: FDCA.

Table 34
Projected AIDS Cases in Canada
1987-1991

	Logistical Model		Polynomial Model	
	Cases	Cummulative	Cases	Cummulative
1987	662	1542	653	1643
1988	590	2132	890	2533
1989	604	2736	1161	3694
1990	608	3344	1469	5163
1991	609	3953	1811	6974

Note: In May 1988, the Federal Centre for AIDS stated that the number of reported cases is doubling every 15 months.

Source: Federal Centre for AIDS, Surveillance Update: AIDS in Canada, Ottawa: FDCA.

Projected Number of AIDS Cases (Cummulative)
Selected Provinces 1989 and 1991

	(%) Canada	1989		1991	
		Logistical	Polynomial	Logistical	Polynomial
Nova Scotia	1.7%	47	63	67	119
New Brunswick	0.5%	14	18	20	35
Newfoundland	0.4%	11	15	16	28
PEI	0.1%	3	4	4	7
Saskatchewan	1.3%	36	48	51	91
Manitoba	1.4%	38	52	55	98

Note: Derived from previous tables.

Source: Federal Centre for AIDS, Surveillance Update: AIDS in Canada, Ottawa: FDCA.

Table 35
Selected Notifiable Diseases
Per 100,000 Population
Selected Provinces and Canada
1961-1986

	1961	1966	1971	1976	1981	1986
A. Gonorhoea						
Canada	90.3	107.3	158.7	229.5	231.4	139.3
Newfoundland	60.3	105.5	68.7	141.9	143.2	76.9
PEI	28.6	20.2	27.0	142.0	75.1	53.1
Nova Scotia	47.4	54.9	115.6	112.3	155.8	110.4
New Brunswick	47.8	57.4	52.1	44.6	37.8	71.8
Saskatchewan	165.2	235.9	301.4	394.4	278.3	172.7
Manitoba	236.2	281.0	334.6	475.0	455.2	284.9
B. Syphilis						
Canada	12.7	9.8	11.5	17.4	4.3	6.3
Newfoundland	1.5	2.6	1.5	2.2	1.2	---
PEI	2.9	2.8	---	3.5	---	---
Nova Scotia	4.1	9.7	14.3	4.9	0.7	0.2
New Brunswick	4.0	2.6	0.8	1.7	0.4	0.4
Saskatchewan	21.1	10.4	22.6	6.4	1.2	0.3
Manitoba	7.7	20.0	25.3	6.6	1.9	0.3
C. Salmonella						
Canada	9.0	11.2	19.3	12.9	33.8	41.3
Newfoundland	0.7	0.2	19.3	13.6	46.7	24.7
PEI	---	0.9	12.6	2.6	31.8	81.7
Nova Scotia	2.2	2.2	6.1	9.9	35.3	23.9
New Brunswick	0.8	9.6	3.6	4.4	14.4	18.2
Saskatchewan	3.9	10.4	24.6	12.8	25.6	31.5
Manitoba	3.6	3.2	5.0	8.2	25.7	20.6
D. Rubella						
Canada			58.0	18.4	7.1	9.8
Newfoundland			5.9	3.3	5.8	36.2
PEI			---	---	---	---
Nova Scotia			24.0	5.0	5.8	0.7
New Brunswick			1.1	1.5	0.3	8.2
Saskatchewan			48.5	12.4	7.4	22.9
Manitoba			120.0	16.2	3.5	3.4

Source: Statistics Canada (various years), unpublished data, Information Production, Health Division, Ottawa.

Table 36A
Separations per 100,000 Population, by the ICD-9 Chapters
Selected Provinces and Canada
1984/85

		CANADA	NFLD	PEI	NS	NB	SASK	MAN
Infectious and parasitic diseases	M	198	243	340	221	249	353	238
	F	200	248	265	222	245	367	242
Neoplasms	M	866	695	1010	1071	863	938	915
	F	1023	759	1052	1110	931	966	1011
Endocrine, nutritional and metabolic diseases	M	238	306	357	343	276	382	215
	F	344	465	543	516	439	513	306
Diseases of the blood and blood-forming organs	M	86	80	104	124	122	150	92
	F	105	115	135	154	149	169	101
Mental disorders	M	577	556	1204	515	581	797	589
	F	683	667	935	623	912	898	667
Disease of the nervous system and sense organs	M	647	596	802	788	678	909	622
	F	726	531	882	867	761	1000	716
Diseases of the circulatory system	M	1862	1781	2089	2429	1983	2168	1867
	F	1447	1926	3469	2218	2421	2940	1484
Diseases of the respiratory system	M	1616	1926	3469	2218	2421	2940	1977
	F	1288	1548	2683	1797	1978	2376	1503
Diseases of the digestive system	M	1713	1689	2225	1942	2133	2464	1795
	F	1616	1682	2124	1990	2051	2503	1655
Diseases of the genitourinary system	M	815	877	1172	1017	1033	989	795
	F	1564	2353	1795	1620	1825	1894	1365
Complications of pregnancy, childbirth, puerperium	M	---	---	---	---	---	---	---
	F	4093	4472	4238	4045	4085	5154	4734
Diseases of the skin and subcutaneous tissue	M	200	259	356	294	239	268	232
	F	199	249	340	276	243	276	217
Diseases of the musculoskeletal system, connective tissue.	M	731	693	904	789	875	868	684
	F	780	615	948	836	918	1003	733
Congenital anomalies	M	153	197	174	228	146	168	128
	F	115	145	106	162	99	121	100
Certain conditions originating in the perinatal period	M	52	56	100	30	40	62	52
	F	37	34	107	17	35	47	34
Symptoms, signs and ill-defined conditions	M	728	853	2073	935	952	1159	822
	F	805	1027	2227	965	1038	1231	906
Injury and poisoning	M	1432	1521	1748	1537	1572	2175	1573
	F	1009	926	1195	1063	1015	1639	1133
Supplementary classifications	M	350	490	172	496	362	472	459
	F	621	959	532	694	552	809	823

Source: Statistics Canada (1984-85), Hospital Morbidity, Catalogue 82-206, Ottawa: Supply and Services Canada.

Table 36B
Separations per 100,000 Population, by ICD-9 Chapters
Selected Provinces and Canada
1979/80

		CANADA	NFLD	PEI	NS	NB	SASK	MAN
Infectious and parasitic diseases	M	221	339	233	225	190	354	233
	F	210	299	253	238	183	360	225
Neoplasms	M	808	699	885	983	936	960	838
	F	1015	791	990	1072	1019	1013	945
Endocrine, nutritional and metabolic diseases	M	230	280	427	327	247	372	228
	F	339	527	661	465	437	533	300
Diseases of the blood and blood-forming organs	M	92	118	174	130	108	159	95
	F	109	139	155	145	141	208	95
Mental disorders	M	612	605	852	459	814	799	593
	F	713	780	873	619	813	999	656
Disease of the nervous system and sense organs	M	626	632	959	726	670	876	626
	F	662	618	902	789	665	912	639
Diseases of the circulatory system	M	1790	1660	2411	2180	1949	2333	1860
	F	1428	1439	1883	1704	1691	2070	1532
Diseases of the respiratory system	M	1791	2419	4263	2519	2422	3252	2072
	F	1433	1909	3450	1977	2061	2789	1644
Diseases of the digestive system	M	1863	1760	2279	2034	2229	2729	1951
	F	1714	1734	2445	1969	2106	2760	1766
Diseases of the genitourinary system	M	805	953	1072	950	975	1047	811
	F	1681	2261	2139	1956	1932	2117	1446
Complications of pregnancy, childbirth, puerperium	M	---	---	---	---	---	---	---
	F	4257	5055	4263	4251	4313	5100	4529
Diseases of the skin and subcutaneous tissue	M	222	333	401	283	260	306	240
	F	229	320	315	282	258	325	241
Diseases of the musculoskeletal system, connective tissue.	M	717	596	772	821	730	894	648
	F	760	584	881	842	468	1009	700
Congenital anomalies	M	182	266	138	242	143	150	165
	F	147	164	106	185	94	116	127
Certain conditions originating in the perinatal period	M	34	55	20	35	32	58	51
	F	24	39	11	26	24	38	35
Symptoms, signs and ill-defined conditions	M	678	704	1862	939	815	999	851
	F	760	935	1974	987	877	1109	876
Injury and poisoning	M	1670	1613	2429	1637	1834	2546	1716
	F	1107	1081	1625	1089	1068	1804	1242
Supplementary classifications	M	250	253	10	352	161	232	330
	F	630	660	398	606	366	612	769

Source: Statistics Canada (1984-85), Hospital Morbidity, Catalogue 82-206, Ottawa: Supply and Services Canada.

Table 37A
Average Days per Separation by ICD-9 Chapters
Selected Provinces and Canada
1984-85

		CANADA	NFLD	PEI	NS	NB	SASK	MAN
Infectious and parasitic diseases	M	9.4	7.0	7.0	7.1	9.6	6.9	11.1
	F	9.3	6.5	6.4	7.5	7.7	13.3	8.2
Neoplasms	M	16.7	15.4	14.3	15.2	18.0	15.2	19.1
	F	14.7	13.6	11.4	14.7	15.5	13.9	16.5
Endocrine, nutritional and metabolic diseases	M	14.2	11.0	9.1	11.9	13.0	11.6	13.7
	F	14.9	11.6	9.6	12.6	13.8	11.8	16.0
Diseases of the blood and blood-forming organs	M	9.8	8.1	11.6	9.2	11.5	6.7	9.6
	F	11.4	9.1	8.2	11.7	12.3	8.2	12.9
Mental disorders	M	25.6	18.1	13.0	14.4	26.4	15.2	22.4
	F	30.1	17.7	17.1	18.3	21.7	17.2	24.7
Disease of the nervous system and sense organs	M	16.6	8.2	8.1	8.5	13.5	8.1	14.8
	F	16.7	8.6	7.1	8.2	9.5	7.4	15.8
Diseases of the circulatory system	M	17.1	12.6	11.8	12.2	17.2	12.0	15.2
	F	25.1	13.9	11.5	14.6	18.7	13.5	18.9
Diseases of the respiratory system	M	7.8	6.4	6.3	7.3	8.7	6.7	8.1
	F	8.2	6.3	3.1	6.9	7.2	5.9	7.3
Diseases of the digestive system	M	7.4	7.2	6.3	8.0	8.2	6.6	7.3
	F	8.6	7.6	6.5	9.4	8.7	7.0	8.5
Diseases of the genitourinary system	M	8.3	7.7	6.8	9.0	8.7	8.4	8.8
	F	6.3	6.4	5.8	6.8	7.1	5.7	6.3
Complications of pregnancy, childbirth, puerperium	M	---	---	---	---	---	---	---
	F	4.6	6.0	5.3	5.0	4.9	4.4	4.0
Diseases of the skin and subcutaneous tissue	M	9.5	9.2	7.8	11.7	10.2	8.3	9.9
	F	10.3	8.7	9.4	12.3	11.7	8.6	10.8
Diseases of the musculoskeletal system, connective tissue.	M	9.3	9.8	7.7	9.4	9.5	7.9	10.2
	F	13.5	10.5	8.8	12.0	11.9	10.1	14.6
Congenital anomalies	M	9.3	9.5	6.0	10.4	7.0	8.4	6.8
	F	10.1	12.6	4.8	12.0	9.5	8.5	8.2
Certain conditions originating in the perinatal period	M	13.7	23.1	8.4	17.3	7.4	10.2	9.4
	F	14.0	31.3	7.9	9.3	9.5	8.7	12.1
Symptoms, signs and ill-defined conditions	M	7.4	5.5	5.0	5.8	8.3	4.5	6.9
	F	8.3	4.9	5.5	6.2	7.5	4.8	6.3
Injury and poisoning	M	8.8	8.6	6.0	8.4	8.9	6.4	9.6
	F	13.2	9.2	9.3	11.5	12.9	8.9	16.2
Supplementary classifications	M	13.1	12.9	19.6	10.0	15.3	8.9	12.9
	F	11.1	9.3	5.2	7.5	8.0	7.7	8.0

Source: Statistics Canada (1984-85), Hospital Morbidity, Catalogue 82-206, Ottawa: Supply and Services Canada.

Table 37B
Average Days per Separation by ICD-9 Chapters
Selected Provinces and Canada
1979/80

		CANADA	NFLD	PEI	NS	NB	SASK	MAN
Infectious and parasitic diseases	M	10.3	8.3	6.5	9.4	10.3	8.4	20.8
	F	9.4	7.9	5.7	11.6	9.1	7.7	8.4
Neoplasms	M	17.3	15.0	11.5	174.3	18.0	16.6	19.4
	F	15.1	14.3	11.3	15.7	15.7	14.3	17.1
Endocrine, nutritional and metabolic diseases	M	16.1	11.1	8.2	12.8	16.1	11.4	17.4
	F	15.6	10.4	9.8	13.2	13.7	12.9	16.2
Diseases of the blood and blood-forming organs	M	10.0	8.8	6.9	10.5	12.3	8.3	9.1
	F	11.9	9.1	7.1	12.7	13.2	9.0	8.5
Mental disorders	M	20.9	18.1	6.2	12.0	14.9	24.0	17.3
	F	23.0	18.6	7.4	13.0	16.2	20.1	18.7
Disease of the nervous system and sense organs	M	16.6	11.2	6.0	8.0	12.6	13.7	11.2
	F	17.0	8.4	7.5	8.1	10.5	14.2	10.8
Diseases of the circulatory system	M	19.8	13.6	11.5	13.5	21.5	15.3	16.9
	F	28.0	14.0	11.0	15.1	17.7	18.7	21.7
Diseases of the respiratory system	M	7.8	6.0	6.4	7.5	8.7	7.1	7.7
	F	7.3	5.7	6.3	7.1	8.3	6.7	6.7
Diseases of the digestive system	M	7.9	7.2	6.0	8.7	9.2	7.4	7.6
	F	8.9	8.0	6.7	9.7	9.5	7.5	8.4
Diseases of the genitourinary system	M	9.0	8.4	6.9	9.9	11.2	9.2	10.4
	F	6.4	6.1	5.6	7.4	8.0	5.8	6.2
Complications of pregnancy, childbirth, puerperium	M	---	---	---	---	---	---	---
	F	4.9	5.8	5.0	5.3	5.4	4.8	4.8
Diseases of the skin and subcutaneous tissue	M	9.5	8.6	8.4	12.3	9.8	8.5	9.1
	F	9.4	8.3	9.8	12.1	11.2	8.8	10.5
Diseases of the musculoskeletal system, connective tissue.	M	10.5	10.0	9.6	11.1	11.7	9.4	10.8
	F	15.0	11.6	10.2	12.7	13.5	13.6	14.8
Congenital anomalies	M	10.0	11.7	9.8	11.0	7.9	8.5	7.4
	F	11.9	13.2	5.7	10.8	8.4	15.1	9.5
Certain conditions originating in the perinatal period	M	13.2	13.0	7.2	17.5	14.0	10.6	11.5
	F	15.7	18.8	12.0	19.4	13.9	7.9	10.8
Symptoms, signs and ill-defined conditions	M	8.0	4.6	5.2	6.9	8.3	6.5	6.3
	F	8.9	5.2	5.2	6.8	8.2	7.6	5.9
Injury and poisoning	M	9.0	7.9	6.0	9.3	8.9	6.9	9.4
	F	12.1	9.0	8.2	12.1	11.9	8.3	12.1
Supplementary classifications	M	13.4	7.7	7.5	7.6	7.5	16.1	26.6
	F	9.7	5.2	3.0	5.8	6.4	9.5	20.0

Source: Statistics Canada (1984-85), Hospital Morbidity , Catalogue 82-206, Ottawa: Supply and Services Canada.

Table 38
Mental Disorders
Age-Standardized Separation Rates*
Males and Females
Selected Provinces and Canada
1971-1982/83

Males

	1971	1972	1973	1974	1975	1976	1977	1978	1979-80	1980-81	1981-82	1982-83
Canada	799.39	825.28	883.28	885.04	851.33	797.58	748.71	789.66	748.45	734.63	697.35	672.26
Newfoundland	865.85	840.00	914.47	859.99	818.24	932.08	831.26	837.59	827.91	896.58	795.12	839.06
PEI	1,093.07	1,409.10	1,608.49	1,642.79	1,784.50	1,974.28	1,789.43	1,332.51	1,365.03	1,443.71	1,510.29	1,219.71
Nova Scotia	976.64	973.25	1,014.16	1,050.88	1,034.02	869.38	798.47	775.37	895.53	936.94	880.52	841.16
New Brunswick+	964.48	1,166.29	988.76	817.96	855.92	837.36	1,039.66	1,033.70	813.08	562.59	512.90	513.27
Saskatchewan	841.25	856.24	824.86	848.51	806.97	851.47	867.16	865.82	801.59	783.46	824.69	792.25
Manitoba	820.24	816.03	1,036.15	882.98	777.55	707.13	717.86	661.91	548.92	563.51	589.55	567.00

Females

	1971	1972	1973	1974	1975	1976	1977	1978	1979-80	1980-81	1981-82	1982-83
Canada	910.72	903.93	911.11	900.63	874.56	829.80	798.44	810.04	782.26	753.01	730.70	715.83
Newfoundland	1,050.80	991.02	1,027.05	1,021.38	972.88	1,020.14	911.38	924.50	924.72	942.24	842.96	852.50
PEI	910.15	875.33	941.58	925.05	989.84	1,098.32	1,042.83	1,033.39	1,221.67	1,220.20	1,225.56	1,109.75
Nova Scotia	1,005.66	1,009.91	943.49	966.28	951.75	864.16	854.71	832.42	894.89	869.80	828.83	778.21
New Brunswick+	936.01	954.28	889.54	781.98	707.69	690.18	727.35	783.75	792.13	747.70	867.71	772.22
Saskatchewan	1,027.92	1,053.42	1,027.37	929.96	971.09	907.39	1,006.44	1,047.62	979.88	963.10	946.18	908.79
Manitoba	1,066.66	995.87	925.03	814.25	769.86	779.10	723.40	649.33	600.53	581.57	619.63	601.62

Note: standardized to 1971 Canada population using five-year age groups.
+ psychiatric hospitals excluded for years 1979-80 - 1982-83.

Source: Statistics Canada (1982-83), Mental Health Statistics, Catalogue 83-204, Ottawa: Supply and Services Canada.

Table 39
Suicide Rates per 100,000 Population
Age Standardized* by Sex
Selected Provinces and Canada
1981-1986

Males

	1981	1982	1983	1984	1985	1986
Canada	19.4	20.2	21.1	19.2	18.2	20.2
Newfoundland	7.1	11.3	9.9	11.6	8.1	6.1
PEI	15.2	15.6	17.7	21.1	14.4	14.3
Nova Scotia	16.9	17.7	19.7	16.0	18.6	16.8
New Brunswick	18.6	20.7	22.4	20.9	18.5	20.9
Saskatchewan	24.6	27.4	21.9	21.8	19.5	20.4
Manitoba	22.5	19.4	23.8	18.3	17.7	19.5

Females

	1981	1982	1983	1984	1985	1986
Canada	6.2	5.8	6.2	5.5	4.8	5.7
Newfoundland	1.4	0.8	1.9	1.4	---	2.0
PEI	---	1.7	6.5	3.5	2.6	5.8
Nova Scotia	3.8	4.9	3.1	2.2	3.2	3.5
New Brunswick	2.7	3.4	3.8	2.8	3.2	4.3
Saskatchewan	8.6	4.9	5.3	3.7	5.3	5.5
Manitoba	4.0	5.1	5.4	5.0	3.9	5.5

Note: standardized to the 1971 population.

Source: Statistics Canada (various years), Vital Statistics Volume III Mortality Summary List of Causes, Catalogue 84-206, Ottawa: Supply and Services Canada.

Table 40
Regional Highlights of Canada's Health Promotion Survey
Self Rated Happiness and Stress
1985

Self Rated Happiness and Stress, persons aged 25-64

	Very Happy	Not So Happy	Very Stressful	Not At All Stressful
Canada	41.2%	3.7%	10.8%	10.1%
Atlantic Canada	37.2%	3.8%	10.1%	16.4%
Quebec	48.6%	3.9%	7.7%	14.8%
Ontario	38.8%	3.5%	12.4%	5.8%
Prairies	36.2%	3.9%	12.6%	8.2%
B.C./Yukon	41.5%	*3.1%	10.9%	10.9%

Note: Self Rated Happiness: In general would you say your're happy, pretty happy, not so happy?

Stress: Would you describe your life as very stressful, fairly stressful, not very stressful, not at all stressful?

* Estimated coefficient of variation between 16.5% and 33.3%. Use data with caution.

Table 41
Regional Highlights of Canada's Health Promotion Survey
Risk Factors for Cardiovascular Disease
1985

Risk Factors for Cardiovascular Disease, persons aged 25-64

	High Blood Pressure	Smoking	Obesity	Lack of Exercise
Canada	8.4%	36.2%	7.8%	25.0%
Atlantic Canada	10.1%	37.4%	11.4%	26.0%
Quebec	7.4%	41.6%	8.4%	28.3%
Ontario	8.1%	34.7%	5.7%	24.5%
Prairies	8.3%	34.2%	10.7%	25.3%
B.C./Yukon	10.3%	30.2%	*6.1%	17.5%

Note: High Blood Pressure: As far as you know is your blood pressure high? (Excludes persons whose formerly high blood pressure is successfully controlled.)

Smoking: At the present time do you smoke cigarettes?

Obesity: Body mass index > 30.0 for males, > 28.6 for females.

Lack of Exercise: fifteen minutes of vigorous activities less than once a week or never.

* Estimated coefficient of variation between 16.5% and 33.3%. Use data with caution.

Source: Health and Welfare Canada (1988), Canada's Health Promotion Survey, Technical Report Series, Special Study of the Socially and Economically Disadvantaged, Russell Wilkins, Ottawa: Supply and Services Canada.

Table 42
Percentage Regular Cigarette Smokers in the Adult Population
Selected Provinces and Canada
By Sex and Age
1986

Males

	CANADA	NS	NB	NFLD	PEI	SASK	MAN
Total 15+ years	30.8%	32.7%	33.6%	35.3%	31.1%	29.2%	29.9%
15-19	17.4%	19.7%	20.2%	24.1%	14.2%	12.8%	10.7%
20-24	31.3%	37.0%	33.4%	38.3%	33.6%	34.8%	26.1%
25-44	35.4%	37.6%	38.4%	40.3%	34.8%	36.2%	35.9%
45-64	33.6%	36.0%	35.3%	37.1%	39.7%	30.1%	35.6%
65+	18.6%	18.7%	27.1%	23.4%	18.5%	15.8%	20.4%
20+	32.3%	34.3%	35.3%	37.1%	33.3%	31.0%	32.1%

Females

	CANADA	NS		NB	PEI	SASK	MAN
Total 15+ years	25.8%	28.7%	27.8%	26.9%	19.8%	25.5%	25.5%
15-19	17.8%	18.0%	20.9%	14.2%	2.7%	19.3%	16.1%
20-24	32.0%	38.3%	36.1%	30.6%	21.8%	30.0%	24.4%
25-44	31.4%	38.8%	34.8%	35.3%	30.1%	33.1%	33.6%
45-64	25.3%	26.3%	25.5%	23.5%	19.2%	26.3%	26.3%
65+	11.3%	7.2%	10.8%	13.8%	6.8%	7.9%	12.3%
20+	26.6%	29.8%	28.6%	28.9%	21.8%	26.1%	26.5%

Note: Regular smokers are those who reported smoking cigarettes daily.

Source: Health and Welfare Canada (1988), The Smoking Behaviour of Canadians - 1986, Ottawa: Supply and Services Canada, Table 2, p. 26.

Table 43
Regional Highlights of Canada's Health Promotion Survey
Alcohol Use by Persons Aged 25-64
1985

Alcohol Use, persons aged 25-64

	Frequent Drinking	Infrequent Drinking	Driving After Drinking	
			Persons (%)	Trips (N)
Canada	9.2%	46.2%	18.7%	64
Atlantic Canada	6.6%	54.7%	13.8%	48
Quebec	7.4%	50.4%	13.7%	49
Ontario	10.3%	46.2%	20.1%	66
Prairies	7.6%	43.7%	22.8%	70
B.C./Yukon	13.8%	33.8%	23.4%	91

Note: Frequent Drinking: fourteen or more drinks per week.

Infrequent Drinking: less than 1 drink per week or no drinking.

Persons (%): during the past month, any driving within two hours after drinking any amount of alcohol.

Trips (N): 100 x number of trips/population.

Table 44
Average Number of Drinks Consumed
By Current Drinkers Aged 15+
Age and Sex
Selected Provinces and Canada, 1985

		Average Number Drinks Per Week	Difference (Men - Women)
Canada	Total	5.10	
	Men	7.29	4.53
	Women	2.76	
Nova Scotia	Total	5.05	
	Men	6.68	3.57
	Women	3.11	
New Brunswick	Total	3.94	
	Men	6.09	4.60
	Women	1.49	
Newfoundland	Total	4.63	
	Men	6.77	4.60
	Women	2.17	
PEI	Total	3.38	
	Men	4.72	2.87
	Women	1.85	
Saskatchewan	Total	4.85	
	Men	6.98	4.50
	Women	2.48	
Manitoba	Total	5.50	
	Men	7.82	4.75
	Women	3.06	

Source: Health and Welfare Canada (1988), Canada's Health Promotion Survey: Technical Report, Eds. Irving Rootman, Reg Warren,Thomas Stephens and Larry Peters, Ottawa: Supply and Services Canada, Alcohol Use Table 2, p. 41.

Table 45
Self Reporting Frequency of Blood Pressure Monitoring
In the Population Age 15+
Selected Provinces and Canada
1985

	% In past 6 months	% In past 6-12 months	% In past 1-2 years	% More than 2 years ago	Never
Canada	56.8	18.0	11.1	9.6	2.4
Nova Scotia	56.6	15.0	10.9	11.0	*3.4
New Brunswick	54.1	15.4	10.5	12.2	*3.9
Newfoundland	51.3	18.5	11.4	12.0	*4.3
PEI	50.4	17.4	12.7	11.7	*4.3
Saskatchewan	53.2	16.0	14.7	11.2	*3.3
Manitoba	54.8	18.0	13.2	10.1	*2.2

Note: high sampling variability.

Source: Health and Welfare Canada (1988), Canada's Health Promotion Survey: Technical Report, Eds. Irving Rootman, Reg Warren,Thomas Stephens and Larry Peters, Ottawa: Supply and Services Canada, Screening for HBP, Table 2, p. 75.

Table 46
Beliefs Regarding Hypertension
In the Population Age 15+
Selected Provinces and Canada
1985

	You only Need to Have Your Blood Pressure Checked If You Think You Have A Problem	Do You Feel You Need More Information About Hypertension?
	% Agree	Yes*
Canada	17.3%	44.4%
Nova Scotia	13.5%	52.6%
New Brunswick	18.9%	32.6%
Newfoundland	19.0%	47.7%
PEI	17.3%	43.2%
Saskatchewan	15.6%	35.3%
Manitoba	13.1%	40.2%

Note: * Yes, percentage wanting information on any topic.

Source: Health and Welfare Canada (1988), Canada's Health Promotion Survey: Technical Report, Eds. Irving Rootman, Reg Warren,Thomas Stephens and Larry Peters, Ottawa: Supply and Services Canada, Screening for HBP, Table 4, p. 7.

Table 47
Percentage of the Population Age 15+ Which Believes More Exercise Would Improve Health
Selected Provinces and Canada
1985

	A Great Deal %	Moderately %	A Little/Not At All %
Canada	26.8	32.8	38.0
Nova Scotia	22.5	30.7	42.9
New Brunswick	24.4	30.6	40.2
Newfoundland	24.7	29.6	43.3
PEI	28.0	28.5	38.8
Saskatchewan	19.2	35.9	43.4
Manitoba	21.6	35.9	41.1

Source: Health and Welfare Canada (1988), Canada's Health Promotion Survey: Technical Report, Eds. Irving Rootman, Reg Warren,Thomas Stephens and Larry Peters, Ottawa: Supply and Services Canada, Exercise Table 7, p. 167.

Table 48
Exercise Frequency
In the Population Age 15+
Selected Provinces and Canada
1985

		Regular (3+/wk) %	Occassional (1-2/wk) %	Never/Seldom (<1/wk) %
Canada	Total	54.3	17.8	26.9
	Men	55.7	18.0	25.0
	Women	52.9	17.6	28.7
Nova Scotia	Total	56.9	12.4	29.0
	Men	63.4	10.1	24.4
	Women	50.6	14.6	33.4
New Brunswick	Total	58.4	13.9	25.2
	Men	63.9	11.8	22.0
	Women	53.0	15.8	28.2
Newfoundland	Total	51.3	18.2	29.9
	Men	57.5	15.7	25.7
	Women	45.0	20.6	34.1
PEI	Total	56.8	11.7	29.9
	Men	64.6	8.0*	26.9
	Women	49.2	15.3	32.9
Saskatchewan	Total	57.5	14.6	27.3
	Men	60.9	11.8	26.5
	Women	54.2	17.2	28.2
Manitoba	Total	53.2	15.6	30.7
	Men	53.6	14.9	31.1
	Women	52.9	16.2	30.3

Note: * high sampling variability.

Source: Health and Welfare Canada (1988), Canada's Health Promotion Survey: Technical Report, Eds. Irving Rootman, Reg Warren,Thomas Stephens and Larry Peters, Ottawa: Supply and Services Canada, Exercise Table 2, p. 164.

Table 49
Consumption of Selected Foods at Breakfast
By Age
Canada, 1985

Percentage Not Consuming ..... at Breakfast

	Tea/Coffee	Breads/Cereals	Fruits/Juices	Milks/Dairy Products	Eggs/Other Meats
Total Age 15+	70.6	20.9	35.1	36.8	47.0
15-24	67.4	21.7	34.0	30.3	47.0
25-34	64.6	26.5	41.0	39.6	47.7
35-44	66.7	23.2	37.0	41.4	44.7
45-54	71.1	18.8	34.7	39.8	42.5
55-64	76.5	17.6	33.7	37.4	49.3
65+	87.1	10.9	25.4	32.8	51.7

Percentage Consuming ..... Every day at Breakfast

	Tea/Coffee	Breads/Cereals	Fruits/Juices	Milks/Dairy Products	Eggs/Other Meats
Total Age 15+	17.6	50.1	43.2	43.3	8.6
15-24	17.3	38.4	41.4	48.2	8.3
25-34	22.3	42.6	35.1	38.3	6.7
35-44	19.2	45.5	39.7	38.3	5.6
45-54	18.3	56.0	43.1	40.2	11.6
55-64	16.6	64.0	48.9	44.9	9.7
65+	7.6	71.6	61.2	52.5	13.1

Note: information is also available by males and females.

Source: Health and Welfare Canada (1988), Canada's Health Promotion Survey: Technical Report, Eds. Irving Rootman, Reg Warren, Thomas Stephens and Larry Peters, Ottawa: Supply and Services Canada.

Table 50
Attitudes and Beliefs About Eating Habits and Health
Canada, By Sex, Age 15+
1985

	Changing Eating Habits Could Improve Your Health	Improving Eating Habits is the Most Important Thing to Do to Improve Your Health	Improving Eating Habits Was the Most Important Action Last Year To Improve Your Health?	Do You Intend To Improve Eating Habits To Improve Your Health Next Year?
	% Agree	% Agree	% Agree	% Yes
Total 15+	66.6	11.1	11.6	13.4
Men	64.4	10.9	8.0	10.1
Women	68.3	11.3	15.0	16.5

Source: Health and Welfare Canada (1988), Canada's Health Promotion Survey: Technical Report, Eds. Irving Rootman, Reg Warren,Thomas Stephens and Larry Peters, Ottawa: Supply and Services Canada.

Table 51
Perception Regarding Foods to Avoid
Canada, By Sex, Age 15+
1985

	Are there any foods you think you should limit or avoid, for the sake of your health?	If yes, which of the following types of foods are most important to limit or avoid? Those high in ..... (Percentage)			
	% Yes	Fat	Cholesterol	Sugar	Salt
Total 15+	63.9	34.5	26.8	24.2	10.9
Men	57.7	35.4	29.6	19.0	11.0
Women	69.9	33.7	24.5	28.7	10.9

Source: Health and Welfare Canada (1988), Canada's Health Promotion Survey: Technical Report, Eds. Irving Rootman, Reg Warren,Thomas Stephens and Larry Peters, Ottawa: Supply and Services Canada.

Table 52
Number and Percentage of Total of Accepted Time-Loss Injuries
By Industry
Selected Provinces and Canada
1987

(Number)

	CANADA	NFLD	PEI	NS	NB	SASK	MAN
Agriculture	6,003	23	60	112	140	215	110
Forestry	9,682	138	48	454	471	187	177
Fishing and Trapping	1,114	565	18	154	12	x	x
Mines (including milling), Quarries and Oil Wells	11,103	215	—	872	250	582	513
Manufacturing Industries	211,230	2,843	591	3,017	3,314	2,249	5,981
Construction Industry	58,903	769	235	1,397	906	2,946	2,650
Transportation, Communication and Other Utilities	51,723	417	127	960	974	1,320	2,416
Trade	88,719	1,120	225	1,545	1,163	3,080	2,982
Finance, Insurance & Real Estate	3,766	26	x	104	31	138	51
Community, Business and Personel Services Industries	112,575	1,708	365	1,641	2,314	3,973	3,070
Public Administration and Defence	36,403	1,103	391	1,344	1,005	681	254
Industries Unspecified or Undefined	11,308	120	xx	132	338	343	4,302
TOTAL	602,531	9,047	2,060	11,732	10,918	15,714	22,506

(Percentage of All Industries)

	CANADA	NFLD	PEI	NS	NB	SASK	MAN
Agriculture	1.00%	0.25%	2.91%	0.95%	1.28%	1.37%	0.49%
Forestry	1.61%	1.53%	2.33%	3.87%	4.31%	1.19%	0.79%
Fishing and Trapping	0.18%	6.25%	0.87%	1.31%	0.11%	—	—
Mines (including milling), Quarries and Oil Wells	1.84%	2.38%	—	7.43%	2.29%	3.70%	2.28%
Manufacturing Industries	35.06%	31.42%	28.69%	25.72%	30.35%	14.31%	26.58%
Construction Industry	9.78%	8.50%	11.41%	11.91%	8.30%	18.75%	11.77%
Transportation, Communication and Other Utilities	8.58%	4.61%	6.17%	8.18%	8.92%	8.40%	10.73%
Trade	14.72%	12.38%	10.92%	13.17%	10.65%	19.60%	13.25%
Finance, Insurance & Real Estate	0.63%	0.29%	—	0.89%	0.28%	0.88%	0.23%
Community, Business and Personel Services Industries	18.68%	18.88%	17.72%	13.99%	21.19%	25.28%	13.64%
Public Administration and Defence	6.04%	12.19%	18.98%	11.46%	9.20%	4.33%	1.13%
Industries Unspecified or Undefined	1.88%	1.33%	—	1.13%	3.10%	2.18%	19.11%
TOTAL	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Source: Statistics Canada (1985-87), Work Injuries, Catalogue 72-208, Ottawa: Supply and Services Canada.

Table 53
Number and (Percentage of Total) Time-Loss Injuries
By Age Group
Provinces and Canada
1987

Number

	CANADA	NFLD	PEI	NS	NB	SASK	MAN
15-19	33,505	441	143	405	540	352	742
20-24	103,014	1,463	392	1,742	1,576	2,758	3,883
25-29	111,571	1,690	301	2,083	1,874	3,340	4,571
30-34	92,229	1,520	316	2,000	1,562	2,678	3,571
35-39	71,713	1,247	268	1,632	1,304	1,906	2,775
40-44	55,837	898	185	1,267	1,024	1,372	2,019
45-49	42,263	534	166	929	719	936	1,545
50-54	34,742	445	142	724	571	854	1,295
55-59	27,621	335	86	564	442	767	1,082
60-64	14,627	156	27	301	210	501	694
65+	2,183	17	xx	79	22	144	188
Unknown	13,226	301	37	xx	1,074	107	145
All Ages	602,531	9,047	2,063	11,726	10,918	15,715	22,510

(Percentage of All Ages)

	CANADA	NFLD	PEI	NS	NB	SASK	MAN
15-19	5.6%	4.9%	6.9%	3.5%	4.9%	2.2%	3.3%
20-24	17.1%	16.2%	19.0%	14.9%	14.4%	17.6%	17.3%
25-29	18.5%	18.7%	14.6%	17.8%	17.2%	21.3%	20.3%
30-34	15.3%	16.8%	15.3%	17.1%	14.3%	17.0%	15.9%
35-39	11.9%	13.8%	13.0%	13.9%	11.9%	12.1%	12.3%
40-44	9.3%	9.9%	9.0%	10.8%	9.4%	8.7%	9.0%
45-49	7.0%	5.9%	8.0%	7.9%	6.6%	6.0%	6.9%
50-54	5.8%	4.9%	6.9%	6.2%	5.2%	5.4%	5.8%
55-59	4.6%	3.7%	4.2%	4.8%	4.0%	4.9%	4.8%
60-64	2.4%	1.7%	1.3%	2.6%	1.9%	3.2%	3.1%
65+	0.4%	0.2%	---	0.7%	0.2%	0.9%	0.8%
Unknown	2.2%	3.3%	1.8%	---	9.8%	0.7%	0.6%
All Ages	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: Statistics Canada (1985-87), Work Injuries, Catalogue 72-208, Ottawa: Supply and Services Canada.

Table 54
Number and Rate of Change of Accepted Time-Loss Injuries
Male and Female
Selected Provinces and Canada
1982-1987

Number
Males

	CANADA	NFLD	PEI	NS	NB	SASK	MAN
1982	379,342	6,183	1,131	10,874	7,878	12,336	—
1983	367,671	6,015	1,192	10,392	7,501	12,579	—
1984	409,141	6,414	1,119	10,077	7,599	12,539	17,222
1985	446,636	6,748	1,284	10,535	6,963	13,099	17,881
1986	465,079	6,551	1,354	10,375	7,545	12,395	18,737
1987	473,741	6,807	1,455	9,376	8,319	11,962	17,666

Rate of Change
Males

	CANADA	NFLD	PEI	NS	NB	SASK	MAN
1982	—	—	—	—	—	—	—
1983	-3.1%	-2.7%	5.4%	-4.4%	-4.8%	2.0%	—
1984	11.3%	6.6%	-6.1%	-3.0%	1.3%	-0.3%	—
1985	9.2%	5.2%	14.7%	4.5%	-8.4%	4.5%	3.8%
1986	4.1%	-2.9%	5.5%	-1.5%	8.4%	-5.4%	4.8%
1987	1.9%	3.9%	7.5%	-9.6%	10.3%	-3.5%	-5.7%

Number
Females

	CANADA	NFLD	PEI	NS	NB	SASK	MAN
1982	78,566	1,495	368	1,627	1,794	2,900	—
1983	83,672	1,658	435	1,764	1,967	2,928	—
1984	97,617	1,748	376	1,863	2,071	3,161	4,117
1985	108,839	1,957	503	2,089	1,996	3,557	4,557
1986	121,001	2,028	581	2,245	2,250	3,519	4,752
1987	127,733	2,143	612	2,356	2,440	3,750	4,840

Rate of Change
Females

	CANADA	NFLD	PEI	NS	NB	SASK	SASK
1982	—	—	—	—	—	—	—
1983	6.5%	10.9%	18.2%	8.4%	9.6%	1.0%	—
1984	16.7%	5.4%	-13.6%	5.6%	5.3%	8.0%	—
1985	11.5%	12.0%	33.8%	12.1%	-3.6%	12.5%	10.7%
1986	11.2%	3.6%	15.5%	7.5%	12.7%	-1.1%	4.3%
1987	5.6%	5.7%	5.3%	4.9%	8.4%	6.6%	1.9%

Source: Statistics Canada (1985-87), Work Injuries, Catalogue 72-208, Ottawa: Supply and Services Canada.

Statistics Canada (1982-84), Work Injuries Statistics, Catalogue 72-208, Ottawa: Supply and Services Canada.

Table 55
Nature of Time-Loss Injury
Percentage Distribution
Selected Provinces and Canada
1984

(%)

	CANADA	NFLD	PEI	NS	NB	SASK	MAN
Burn or Scald	2.4	1.5	2.7	2.2	2.8	3.9	2.7
Contusion, Crushing, Bruise	17.8	20.5	20.7	13.0	18.8	15.0	15.7
Cut, Laceration, Puncture	11.8	16.0	12.8	12.0	14.6	10.8	14.2
Fracture	7.3	2.8	2.9	7.5	8.1	4.5	5.5
Hernia	0.8	xxx	0.7	1.3	0.8	0.9	1.0
Scratches, Abrasion	6.3	4.7	6.0	2.0	3.3	6.2	4.4
Sprains & Strains	39.3	39.7	46.2	50.4	41.2	46.0	48.0
Selected Causes Total	85.7	85.2	92.0	88.4	89.6	87.3	91.5

Source: Statistics Canada (1982-84), Work Injuries Statistics, Catalogue 72-208, Ottawa: Supply and Services Canada.

Table 56
Percentage Distribution of Accepted Time-Loss Injuries
By Part of Body
Selected Provinces and Canada
1984

(%)

	CANADA	NFLD	PEI	NS	NB	SASK	MAN
Head	7.7	14.5	7.5	4.1	6.4	8.1	7.3
Neck	28.0	1.6	1.2	1.5	1.1	3.7	1.6
Upper Extremities	36.6	30.0	25.9	25.4	27.6	25.8	27.1
Trunk	19.7	31.7	41.1	38.5	36.1	39.0	33.4
Lower Extremities	5.1	15.7	19.9	21.1	21.6	21.6	18.6
Multiple Parts	0.6	5.2	3.5	7.9	6.1	0.6	8.6
Body Systems	0.5	0.2	0.8	1.6	0.4	0.6	0.5
Body Parts N.E.C.	0.2	0.1	---	---	x	0.3	2.9
Unclassified	1.6	0.8	x	x	0.7	0.3	x
Total	100.0	99.8	99.9	100.1	100.0	100.0	100.0

Source: Statistics Canada (1982-84), Work Injuries Statistics, Catalogue 72-208, Ottawa: Supply and Services Canada.

Table 57
Is Your Place of Work an
Appropriate Place to Promote Good Health Habits?
Response to Canada's Health Promotion Survey
Respondents Aged 15+
Selected Provinces and Canada
1985

"Do You Think Your Place of Work is an Appropriate Place to Promote Good Health Habits?", and "Are You Aware of Any Programs at Your Place of Work to Improve Health, Physical Fitness or Good Nutrition?"

	% Agree Activities are Appropriate	% Aware of Activities
Canada	68.7	40.5
Newfoundland	59.5	37.0
PEI	68.3	42.8
Nova Scotia	70.5	46.9
New Brunswick	60.5	40.4
Saskatchewan	71.2	31.3
Manitoba	71.0	41.4

Source: Health and Welfare Canada (1988), Canada's Health Promotion Survey: Technical Report, Eds. Irving Rootman, Reg Warren, Thomas Stephens and Larry Peters, Ottawa: Supply and Services Canada, Safety and Health Promotion at Work, Table 5, p. 135.

Table 58
Percentage of Young People Smoking Cigarettes
Nova Scotia, Canada and Relative Comparisons
1984-85

(%)

	Non-Users	< 10 a day	10 to 20 a day	20 or more
Grade 7				
Nova Scotia	87.1	9.7	2.5	0.7
Canada	89.0	8.7	1.5	0.8
High Province	92.7	13.8	3.1	1.8
Low Province	82.3	6.1	0.6	0.0
Grade 10				
Nova Scotia	73.4	16.6	8.1	1.9
Canada	73.7	15.3	8.4	2.4
High Province	80.1	25.1	11.6	3.7
Low Province	63.7	12.1	6.2	1.3

Source: King, Alan J. C., Alan S. Robertson, Wendy K. Warren (1984-85), Canada Health Attitudes & Behaviours Survey: 9, 12 and 15 Year Olds, 1984-85, Nova Scotia Report, Social Program Evaluation Group, Queen's University at Kingston, Ottawa: Health and Welfare Canada.

Table 59
Percentage of Young People Drinking Alcohol
Nova Scotia, Canada and Relative Comparisons
1984-85

	Do Not Drink	About Once A Month	2-3 Times a Month to Once A Week	At Least 2-3 Times A Week
Grade 7				
Nova Scotia	80.2	11.4	7.2	1.1
Canada	75.0	14.5	8.0	2.5
High Province	86.7	16.6	11.7	3.1
Low Province	70.1	6.6	4.2	1.1
Grade 10				
Nova Scotia	43.1	25.4	26.9	4.6
Canada	33.3	24.4	32.0	10.2
High Province	44.9	27.1	39.5	12.3
Low Province	25.8	21.4	23.0	4.6

Source: King, Alan J. C., Alan S. Robertson, Wendy K. Warren (1984-85), Canada Health Attitudes & Behaviours Survey: 9, 12 and 15 Year Olds, 1984-85, Nova Scotia Report, Social Program Evaluation Group, Queen's University at Kingston, Ottawa: Health and Welfare Canada.

Table 60
Percentage of Young People Using Cannabis
Nova Scotia, Canada and Relative Comparisons
1984-85

	Do Not Use	About Once A Month	2-3 Times a Month to Once A Week	At Least 2-3 Times A Week
Grade 7				
Nova Scotia	96.1	1.7	1.4	0.7
Canada	96.8	1.3	1.0	0.9
High Province	98.0	1.9	1.9	1.3
Low Province	95.8	0.9	0.5	0.4
Grade 10				
Nova Scotia	81.6	7.7	6.0	4.8
Canada	80.3	7.1	7.1	5.5
High Province	89.2	10.6	9.3	8.2
Low Province	72.0	4.5	2.9	3.4

Source: King, Alan J. C., Alan S. Robertson, Wendy K. Warren (1984-85), Canada Health Attitudes & Behaviours Survey: 9, 12 and 15 Year Olds, 1984-85, Nova Scotia Report, Social Program Evaluation Group, Queen's University at Kingston, Ottawa: Health and Welfare Canada.

Table 61
Disability Status of Children Age 0-14
By Age and Sex
Selected Provinces and Canada
October 1983 - June 1984

Percent Disabled

	Canada	Nova Scotia	New Brunswick	Newfoundland	PEI	Saskatchewan	Manitoba
Both Sexes							
All Ages	5.7%	5.8%	6.0%	5.0%	--	6.5%	5.8%
0 - 4	4.4%	5.1%	5.8%	--	--	5.0%	3.9%
5 - 9	5.9%	6.5%	7.3%	--	--	5.2%	5.5%
10 - 14	6.7%	5.8%	6.7%	6.8%	--	8.0%	6.5%
Boys							
All Ages	6.4%	6.2%	7.0%	6.1%	--	5.9%	6.0%
0 - 4	4.8%	--	--	--	--	--	--
5 - 9	7.1%	--	--	--	--	--	7.9%
10 - 14	7.4%	--	--	--	--	*7.9%	7.7%
Girls							
All Ages	4.9%	5.4%	4.9%	3.8%	--	5.3%	3.6%
0 - 4	3.9%	--	--	---	--	--	--
5 - 9	4.7%	--	--	---	--	--	--
10 - 14	6.1%	--	--	---	--	*8.1%	--

Note: * coefficient of variation is between 16.5% and 25%; the estimate should be interpreted with caution.

Source: Statistics Canada (1986), Report of the Canadian health and disability survey 1983-1984, Catalogue 82-555E, Ottawa: Supply and Services Canada, Table 39, p. 102-6.

Table 62
Percentage of Young People Classified by Body Type
Grades 7 and 10
Nova Scotia, Canada and High and Low Province
Results of the Canada Health Attitudes and Behaviours Survey
1984-85

	Under Weight	Slightly Under Weight	Normal	Slightly Over Weight	Over Weight
Grade 7					
Nova Scotia	8.0	30.1	39.2	11.2	11.4
Canada	9.4	30.2	43.1	9.4	7.9
High Province	12.3	33.3	48.4	11.9	11.4
Low Province	6.2	24.3	39.2	8.0	5.0
Grade 10					
Nova Scotia	2.5	18.8	56.7	11.6	10.4
Canada	2.5	20.1	57.1	13.3	7.1
High Province	3.4	22.9	60.0	14.3	11.0
Low Province	1.5	17.0	53.9	11.6	5.1

Source: Queen's University (1984-5), Alan J.C. King, Alan S. Robertson, and Wendy K. Warren, Canada Health Attitudes and Behaviours Survey 9, 12 and 15 Year Olds: Nova Scotia Report, 1984-85, Social Program Evaluation Group, Ottawa: Health and Welfare Canada.

Table 63
Percentage of Young People at Each of the Five Physical Activity Levels
Grades 4 and 7 and 10
Nova Scotia, Canada and High and Low Province
Results of the Canada Health Attitudes and Behaviours Survey
1984-85

	Very Low	Low	Moderate	High	Very High
Grade 4					
Nova Scotia	4.9	9.2	11.9	23.8	50.2
Canada	5.8	10.7	12.8	22.6	48.1
High Province	8.5	15.2	14.7	25.0	54.8
Low Province	4.0	7.7	10.9	19.6	42.1
Grade 7					
Nova Scotia	6.5	14.8	16.2	23.0	39.6
Canada	5.8	11.9	14.6	23.7	44.0
High Province	10.0	14.8	16.8	24.8	49.2
Low Province	4.1	9.6	11.9	21.6	38.1
Grade 10					
Nova Scotia	17.7	16.8	18.5	19.9	27.0
Canada	13.2	17.6	18.0	19.5	31.7
High Province	17.7	20.7	19.8	21.0	36.6
Low Province	11.7	14.8	15.8	18.0	27.0

Source: Queen's University (1984-5), Alan J.C. King, Alan S. Robertson, and Wendy K. Warren, Canada Health Attitudes and Behaviours Survey 9, 12 and 15 Year Olds: Nova Scotia Report, 1984-85, Social Program Evaluation Group, Ottawa: Health and Welfare Canada.

Table 64
Percentage of Young People Meeting the
Daily and Variety Criteria for the Four Food Groups
Grades 4 and 7 and 10
Nova Scotia, Canada and High and Low Province
Results of the Canada Health Attitudes and Behaviours Survey
1984-85

	Nova Scotia	Canada	High Province	Low Province
Grade 4	51.5	51.5	55.5	40.3
Grade 7	51.5	52.3	57.1	39.3
Grade 10	50.4	50.3	55.4	36.1

Source: Queen's University (1984-5), Alan J.C. King, Alan S. Robertson, and Wendy K. Warren, Canada Health Attitudes and Behaviours Survey 9, 12 and 15 Year Olds: Nova Scotia Report, 1984-85, Social Program Evaluation Group, Ottawa: Health and Welfare Canada.

Table 65
Percentage of Young People Classified as High in the Consumption of Foods High in Sugar, Salt, Fat and Fibre
Grades 4 and 7 and 10
Nova Scotia, Canada and High and Low Province
Results of the Canada Health Attitudes and Behaviours Survey
1984-85

		Grade 4	Grade 7	Grade 10
Sugar	Nova Scotia	41.5	31.6	29.1
	Canada	29.2	29.9	23.3
	High Province	44.4	50.0	42.3
	Low Province	25.5	20.7	17.6
Salt	Nova Scotia	45.8	51.7	51.3
	Canada	38.6	45.4	43.4
	High Province	45.8	58.6	62.9
	Low Province	30.7	37.2	33.8
Fat	Nova Scotia	71.8	74.9	71.4
	Canada	67.6	71.3	68.8
	High Province	77.4	80.5	79.6
	Low Province	62.3	63.2	65.2
Fibre	Nova Scotia	76.3	70.4	65.0
	Canada	76.2	71.4	64.8
	High Province	83.3	79.7	75.3
	Low Province	63.8	56.5	46.2

Source: Queen's University (1984-5), Alan J.C. King, Alan S. Robertson, and Wendy K. Warren, Canada Health Attitudes and Behaviours Survey 9, 12 and 15 Year Olds: Nova Scotia Report, 1984-85, Social Program Evaluation Group, Ottawa: Health and Welfare Canada.

Table 66
Self Reported Frequency of PAP Smears
Among Women Aged 15+
Response to Canada's Health Promotion Survey
Selected Provinces and Canada
1985

"When was the last time you had a PAP smear for cancer?"

	% Within past year	% Within past 2-3 years	% More than 3 years	% Never
Canada	56.4	14.6	10.4	14.3
Newfoundland	50.9	11.9	14.3	18.5
PEI	56.8	11.6	10.8	15.3
Nova Scotia	53.3	12.6	14.1	14.0
New Brunswick	49.4	13.7	11.6	18.6
Saskatchewan	58.8	14.3	11.0*	10.6*
Mantioba	58.3	16.9	7.6*	11.5

Note: * high sampling variability.

Source: Health and Welfare Canada (1988), Canada's Health Promotion Survey: Technical Report, Eds. Irving Rootman, Reg Warren, Thomas Stephens and Larry Peters, Ottawa: Supply and Services Canada, Female Preventive Health Practices, Table 1, p. 88.

Table 67
Knowledge of How to Perform Breast Self Exam (BSE) and the Relationship between Knowledge and Actual Performance of BSE Among Women Aged 15+
Response to Canada's Health Promotion Survey
Selected Provinces and Canada
1985

	In the past 12 months have you had your breasts examined by a doctor or a nurse?	Have you ever been shown how to exam your own breasts?	Those women who have been shown how to examine their own breasts: "how often do you examine your own breasts?"			
	% Yes	% Yes	% Once a Month	% Once in 2-3 months	% Less often	% Never
CND	64.5	74.5	47.2	22.0	18.4	12.4
NFLD	49.8	65.1	57.8	20.9	13.3	7.0*
PEI	60.5	65.9	46.5	23.2	19.3	11.0
NS	54.0	67.2	48.2	19.1	21.3	11.4
NB	52.0	64.1	47.3	21.5	21.4	9.8*
SASK	63.2	70.5	44.1	25.5	17.3	13.1
MAN	66.0	76.9	47.1	25.8	17.8	9.3*

Note: high sampling error.

Source: Health and Welfare Canada (1988), Canada's Health Promotion Survey: Technical Report, Eds. Irving Rootman, Reg Warren, Thomas Stephens and Larry Peters, Ottawa: Supply and Services Canada, Female Preventive Health Practices, Tables 2 and 3, p. 86-7.

Table 68A
Frequency of Seatbelt Use
When Riding in a Car
Population Aged 15+
Response to Canada's Health Promotion Survey
Selected Provinces and Canada
1985

	% Always	% Most of the time	% Sometimes	% Rarely/ Never
Canada	65.5	12.8	8.6	12.5
Newfoundland+	67.8	14.7	9.0	7.6
PEI	22.1	11.6	19.0	47.4
Nova Scotia+	83.4	9.5	3.5*	3.4*
New Brunswick+	70.7	15.7	5.2	8.5
Saskatchewan+	50.1	20.5	13.4	15.7
Manitoba+	64.7	16.5	7.6	10.5

Note: + jurisdictions with mandatory seatbelt laws as of June 1985.
* high sampling variability.

Source: Health and Welfare Canada (1988), Canada's Health Promotion Survey: Technical Report, Eds. Irving Rootman, Reg Warren, Thomas Stephens and Larry Peters, Ottawa: Supply and Services Canada, Safety on the Road, Table 13, p. 111.

Table 68B
Percentage of Drivers Which Insists that Children with Them Use Seatbelts or Carseats
Population Aged 15+
Response to Canada's Health Promotion Survey
Selected Provinces and Canada
1985

	% Always	% Most of the time	% Sometimes	% Rarely/ Never
Canada	84.4	6.5	3.4	5.3
Newfoundland++	84.9	8.1*	3.9*	---
PEI	65.5	10.3	8.6	15.5
Nova Scotia++	95.3	3.0*	---	---
New Brunswick++	86.5	7.7	2.2	3.0*
Saskatchewan++	69.7	15.9	8.5*	5.7*
Manitoba++	84.6	8.5*	3.5*	2.8*

Note: ++ indicates child restraint legislation as of June 1985.
* high sampling variability.

Source: Health and Welfare Canada (1988), Canada's Health Promotion Survey: Technical Report, Eds. Irving Rootman, Reg Warren, Thomas Stephens and Larry Peters, Ottawa: Supply and Services Canada, Safety on the Road, Table 14, p. 111.

Table 69
Percentage of the Population
Owning Selected Home Safety Devices
Population Aged 15+
Response to Canada's Health Promotion Survey
Selected Provinces and Canada
1985

	% First Aid Kit	% Smoke Detector	% Fire Extinguisher	% None of these	% All of these
Canada	72.4	77.0	49.6	7.1	35.3
Newfoundland	65.8	83.1	51.2	8.8	37.4
PEI	53.7	83.6	60.0	7.3	35.6
Nova Scotia	61.1	77.7	50.1	8.9	31.8
New Brunswick	60.9	82.0	49.4	6.8	30.3
Saskatchewan	65.3	78.0	56.6	7.4	36.7
Manitoba	66.7	80.8	53.9	7.3	35.7

Source: Health and Welfare Canada (1988), Canada's Health Promotion Survey: Technical Report, Eds. Irving Rootman, Reg Warren, Thomas Stephens and Larry Peters, Ottawa: Supply and Services Canada, Safety at Home, Table 6, p. 121.

Table 70
Total Health Expenditures
As Dollars, Percent GDP, Per Capita Expenditures, Per Capita GDP and Annual Average Weekly Earnings
Canada, Atlantic Provinces, Saskatchewan and Manitoba, 1970-1987

A. (Millions $)

	1970	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984*	1985*	1986*	1987*
CANADA	6,255.9	12,239.3	14,088.4	15,494.2	17,251.7	19,430.4	22,719.4	26,642.5	31,172.7	34,697.0	37,420.2	39,793.3	43,900.0	46,700.0
NFLD	96.5	239.1	277.3	302.6	344.6	400.2	451.3	527.4	602.5	683.8	713.9	744.9	---	---
PEI	25.9	55.2	60.2	65.6	76.4	91.4	115.5	125.2	137.8	144.5	151.9	163.1	---	---
NS	195.1	393.4	452.4	481.8	529.0	586.4	669.9	815.3	952.6	1,051.3	1,168.3	1,259.1	---	---
NB	143.8	274.6	318.1	353.6	398.1	461.3	552.3	666.7	802.1	874.5	935.7	975.0	---	---
SASK	238.4	459.4	539.8	603.8	644.9	732.5	852.8	988.6	1,173.7	1,358.7	1,471.4	1,550.7	---	---
MAN	295.1	545.2	631.1	709.0	752.9	837.6	990.2	1,173.7	1,336.0	1,476.7	1,611.8	1,730.4	---	---

B. (% GDP)

	1970	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984*	1985*	1986*	1987*
CANADA	7.3	7.3	7.2	7.2	7.2	7.1	7.4	7.6	8.4	8.6	8.5	8.6	8.9	8.8
NFLD	8.1	11.1	10.6	10.3	11.0	10.6	11.4	11.5	12.2	12.6	11.9	11.7	---	---
PEI	10.8	11.4	11.2	11.4	11.5	12.0	13.4	13.0	13.3	12.1	12.4	12.4	---	---
NS	8.8	10.1	10.0	9.8	9.5	9.6	10.5	11.1	11.4	11.2	11.2	10.8	---	---
NB	8.8	8.7	8.8	8.9	8.8	8.4	11.0	11.4	12.6	11.9	11.6	11.0	---	---
SASK	7.9	6.5	6.8	7.2	6.7	6.7	6.4	6.5	7.6	8.4	8.4	8.9	---	---
MAN	8.1	7.8	7.9	8.4	8.1	8.1	8.8	8.9	9.6	9.8	9.7	9.6	---	---

C. ($ Per Capita)

	1970	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984*	1985*	1986*	1987*
CANADA	293	539	612	665	733	817	944	1093	1264	1398	1488	1568	---	---
NFLD	186	435	497	540	613	710	797	928	1057	1187	1231	1282	---	---
PEI	236	470	509	548	631	748	940	1020	1121	1160	1206	1279	---	---
NS	249	480	546	578	631	700	793	963	1117	1218	1340	1431	---	---
NB	229	412	469	516	579	667	794	957	1146	1233	1309	1354	---	---
SASK	254	505	585	645	683	769	888	1020	1198	1366	1460	1523	---	---
MAN	300	537	618	690	730	815	966	1143	1290	1408	1521	1616	---	---

D. (Per Capita GDP)

	1970	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
CANADA	---	---	---	9,313	10,283	11,634	12,878	14,624	15,230	16,299	17,796	18,993	---	---
NFLD	---	---	---	5,361	5,745	6,927	7,248	8,203	8,922	9,606	10,579	11,211	---	---
PEI	---	---	---	5,058	5,683	6,496	6,992	8,270	8,615	9,472	10,468	10,560	---	---
NS	---	---	---	5,981	6,750	7,350	7,553	8,807	10,074	11,368	12,536	13,601	---	---
NB	---	---	---	5,826	6,519	7,827	7,263	8,628	9,405	10,720	11,890	12,530	---	---
SASK	---	---	---	8,704	9,840	11,019	12,944	14,813	15,092	15,389	16,844	17,208	---	---
MAN	---	---	---	8,082	8,922	10,038	10,916	12,824	13,562	14,261	15,694	16,916	---	---

E. (Annual Average Weekly Earnings All Industries**)

	1970	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
CANADA	---	---	---	249.95	265.37	288.25	317.39	355.28	390.79	390.56	405.22	419.27	---	---
NFLD	---	---	---	242.43	248.36	271.64	288.90	328.08	361.82	370.82	389.14	396.73	---	---
PEI	---	---	---	187.73	196.72	209.77	230.33	250.13	278.53	314.92	324.41	338.97	---	---
NS	---	---	---	212.09	223.72	245.23	265.95	296.35	329.12	342.82	360.32	376.54	---	---
NB	---	---	---	223.34	232.89	256.49	284.36	313.37	342.14	353.40	374.20	384.95	---	---
SASK	---	---	---	235.56	250.44	275.79	303.71	336.76	373.80	374.05	387.75	394.24	---	---
MAN	---	---	---	226.29	239.71	259.00	283.20	314.42	346.49	361.05	378.84	387.94	---	---

Note: Provincial estimates are not yet available for 1986 and 1987.
* Provisional data.
** From 1983 onward the earnings data include estimates for public administration, education, health and welfare services; province data were not adusted by Statistics Canada to make the series comparable over the whole period 1977-1985. While this situation makes it impractical to compare individual series over time, comparisons between and among provinces can still be made.

Source: Statistics Canada (December 1988), Canadian Economic Observer, Catalogue 11-010, Ottawa: Supply and Services Canada.
Statistics Canada (various years), Employment, Earnings and Hours, Catalogue 72-002, Ottawa: Supply and Services Canada.
Health and Welfare Canada (1987), National Health Expenditures in Canada 1975-1985, Ottawa.
Health and Welfare Canada (1985), National Health Expenditures in Canada 1970-1982, Ottawa.

Table 71
Index of Changes in Provincial Government Health Expenditures
Atlantic Provinces, Saskatchewan and Manitoba
Selected Years
1974-75 - 1988-89*

	1974-75 ($)	1974-75	1979-80	1984-85	1988-89*
Newfoundland	($174,712)	100.0	176.3	307.4	401.4
PEI	($35,673)	100.0	179.9	331.5	429.1
Nova Scotia	($229,710)	100.0	185.7	365.6	485.0
New Brunswick	($170,057)	100.0	204.5	402.5	527.1
Saskatchewan	($260,081)	100.0	202.9	380.0	501.3
Manitoba	($315,622)	100.0	184.9	355.4	482.1

Note: Base year 1974-75 = 100.0
* Preliminary data

Source: Health and Welfare Canada, unpublished tables from Policy, Communications and Information Branch.

Table 72
Health Expenditures per Capita
Current and Constant Dollars
Selected Years (1975-1985), Canada

	Current Dollars		Constant Dollars	
	$	% Change	$	% Change
1975	539	---	889	---
1979	817	51.6	1002	12.7
1982	1,264	54.7	1161	15.9
*1985	1,568	24.1	1281	10.3
(1975-1985)	---	190.9	---	44.1

Note: * Provisional data.

Source: Statistics Canada (December 1988), Canadian Economic Observer, Ottawa: Supply and Services Canada.

Health and Welfare Canada (1987), National Health Expenditures in Canada 1975-1985, Ottawa.

Health and Welfare Canada (1985), National Health Expenditures in Canada 1970-1982, Ottawa.

Table 73
Percentage Distribution of Total Health Expenditures
By Major Category and Sector
Selected Provinces and Canada
1975 and 1985

	Canada		Newfoundland		PEI		Nova Scotia		New Brunswick		Saskatchewan		Manitoba	
	1975	1985*	1975	1985*	1975	1985*	1975	1985*	1975	1985*	1975	1985*	1975	1985*
Category						Percent								
Hospitals	44.5	40.4	48.5	47.0	44.3	40.7	48.2	46.4	50.0	44.5	41.1	34.7	44.9	39.2
Other Institutions	9.8	11.3	7.3	11.6	14.4	12.9	5.6	7.6	7.0	13.1	12.9	19.4	13.3	13.2
Physicians	15.7	15.7	11.3	11.0	12.0	12.0	15.0	14.2	12.5	12.6	12.5	11.9	13.0	12.0
Dentists	4.9	5.5	2.1	2.4	4.8	4.5	3.7	5.0	3.1	3.3	4.1	5.0	4.5	5.2
Drugs	8.9	10.2	9.2	12.2	9.8	14.7	9.8	14.4	8.6	11.8	11.4	10.3	8.8	9.7
Capital	5.0	4.4	12.0	4.9	3.3	1.1	7.8	3.5	10.6	5.7	5.7	5.3	3.4	5.7
Other	11.2	12.5	9.6	10.9	11.4	14.1	9.9	8.9	8.2	9.0	12.3	13.4	12.1	15.0

	Canada		Newfoundland		PEI		Nova Scotia		New Brunswick		Saskatchewan		Manitoba	
	1975	1985*	1975	1985*	1975	1985*	1975	1985*	1975	1985*	1975	1985*	1975	1985*
Sector						Percent								
Fed. Govt. Direct Exp.	3.2	3.1	2.0	2.8	2.7	3.0	6.1	4.9	3.0	3.0	4.0	5.1	7.2	8.0
Fed. Cont. to Prov.	27.7	28.4	34.7	35.6	32.1	35.3	28.9	31.3	33.6	32.8	29.2	30.1	26.7	27.5
Prov. Gov't. Exp.	42.9	41.1	48.7	40.1	43.3	38.2	38.2	37.3	40.6	38.4	35.1	40.0	42.2	40.0
Prov. Tr. to Local Gov't.	0.6	0.6	---	---	---	---	1.0	---	---	---	1.5	0.1	0.3	0.1
Workers' Comp Exp.	1.0	0.9	0.6	1.1	0.5	0.6	0.6	0.7	1.1	1.3	0.7	0.4	0.5	0.8
Local Gov't. Exp.	1.1	1.8	---	---	---	---	2.3	1.0	---	0.2	2.7	5.1	2.1	1.6
Private Expenditures	23.5	24.1	14.0	20.4	21.5	22.9	22.9	24.8	21.7	24.2	26.8	19.2	22.1	22.0

Note: * Provisional data.
Total amounts expended in each province would include "Federal Contributions to Provinces, "Provincial Government Expenditures" and "Provincial Transfers to Local Government."

Source: Health and Welfare Canada (1987), National Health Expenditures in Canada 1975-1985, Ottawa.

Table 74
Population per Selected Health Personnel
Selected Provinces and Canada
1976, 1981 and 1986

Population per Nurse Registered and Employed PT or FT in Nursing

	CND	NFLD	PEI	NS	NB	SASK	MAN
1976	168	199	146	147	160	147	147
1981	152	168	166	134	172	141	145
1986	125	127	130	108	114	121	123

Population per Employed Occupational Therapist

	CND	NFLD	PEI	NS	NB	SASK	MAN
1976	15,388	43,000	19,833	46,233	61,973	34,430	9,850
1981	13,220	31,444	10,208	20,707	31,605	38,956	7,980
1986	9,953	17,738	6,340	14,375	10,929	12,799	5,375

Population per Active Member of Physiotherapy Associations

	CND	NFLD	PEI	NS	NB	SASK	MAN
1976	6,449	15,108	7,438	9,566	13,367	8,451	5,691
1981	5,498	12,043	8,750	6,792	11,785	7,434	5,021
1986	4,223	10,709	6,674	5,347	6,897	5,266	4,300

Population per Active Audiologist, Speech Pathologist, and Aud./Speech Ther.

	CND	NFLD	PEI	NS	NB	SASK	MAN
1976	22,119	118,000	23,800	18,914	42,606	16,028	12,493
1981	14,993	25,727	12,250	10,613	23,177	18,035	8,302
1986	9,120	16,694	9,754	9,329	12,041	13,304	6,398

Population per Active Licensed Dentist

	CND	NFLD	PEI	NS	NB	SASK	MAN
1976	2,463	5,427	2,833	3,369	4,234	3,368	2,732
1981	2,132	4,602	3,063	2,704	3,547	2,907	2,324
1986	1,937	4,143	2,698	2,302	3,102	2,689	2,116

Population per Licensed Dental Hygienist

	CND	NFLD	PEI	NS	NB	SASK	MAN
1976	12,005	32,882	62,263	---	---	35,754	6,695
1981	5,935	25,727	5,568	5,937	13,371	16,232	4,575
1986	4,205	25,800	6,340	3,764	8,166	10,213	3,089

Population per Licensed Chiropractor

	CND	NFLD	PEI	NS	NB	SASK	MAN
1976	13,615	559,000	59,500	64,015	42,606	16,600	17,662
1981	10,121	80,857	40,833	44,684	28,971	12,486	14,297
1986	8,497	47,300	63,400	39,859	22,200	10,990	10,538

Population per Active Medical Laboratory Technologist

	CND	NFLD	PEI	NS	NB	SASK	MAN
1976	1,657	2,441	1,803	1,286	2,137	1,377	1,297
1981	1,538	2,237	1,678	1,147	1,667	1,220	1,135
1986	1,481	2,200	1,457	1,103	1,441	1,046	1,067

Population per Member of the Cnd. Assoc. of Medical Radiation Technologists

	CND	NFLD	PEI	NS	NB	SASK	MAN
1976	2,890	3,390	see NB	2,338	3,229	2,750	1,944
1981	2,535	3,652	see NB	1,984	2,509	2,530	1,924
1986	2,466	3,784	2,642	1,874	2,658	2,675	2,040

Source: Health and Welfare Canada (1987), Health Personnel in Canada 1987, Ottawa: Supply and Services Canada.

Table 75
Population per Active Civilian Physician and Specialists
Including Interns and Residents
Selected Provinces and Canada
1976-1986

	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
Active Civilian Physicians including Interns and Residents											
CANADA	577	566	560	554	547	538	521	510	503	487	479
NFLD	718	699	696	687	655	635	604	586	582	583	545
PEI	850	855	827	801	805	790	800	831	796	766	716
NS	593	565	546	537	533	531	522	499	505	483	479
NB	882	880	878	905	885	853	798	760	757	743	764
SASK	707	677	675	667	669	659	641	635	640	629	620
MAN	579	569	558	556	545	539	509	499	500	494	488
Specialists											
CANADA	1,385	1,361	1,350	1,330	1,314	1,283	1,252	1,227	1,206	1,179	1,156
NFLD	2,754	2,686	2,640	2,362	2,296	2,112	2,057	1,979	1,956	2,122	2,087
PEI	2,429	2,274	2,338	2,311	2,186	2,269	2,088	2,010	1,878	2,107	1,838
NS	1,629	1,577	1,514	1,528	1,481	1,434	1,354	1,298	1,311	1,330	1,288
NB	2,130	2,120	2,104	2,090	2,017	2,010	1,863	1,852	1,887	2,007	1,984
SASK	2,182	2,143	2,119	2,109	2,105	2,029	2,005	1,980	2,020	1,972	1,930
MAN	1,468	1,449	1,406	1,405	1,350	1,342	1,296	1,275	1,245	1,230	1,204

Source: Health and Welfare Canada (1988), Health Personnel in Canada, Ottawa.

Table 76
Public Hospital Beds per 1,000 Population
Selected Provinces and Canada
1961-1986

	1961	1966	1971	1976	1981	1985/86
NFLD	3.8	6.1	4.7	5.7	6.44	6.00
PEI	6.8	6.6	6.5	6.5	5.93	5.89
NB	4.9	5.7	5.6	6.2	6.27	7.17
NS	5.2	5.8	6.6	6.0	6.95	6.59
SASK	7.4	7.6	7.2	8.6	7.34	7.22
MAN	6.0	6.3	5.2	6.3	6.33	6.05
CANADA*	5.5	6.1	5.3	6.0	6.77	6.70

Note: For the purposes of creating a chart, the Canadian value for 1976 was extrapolated from 1971-1981.

Source: Statistics Canada (December 1984), Hospital Statistics Preliminary Annual Report, Catalogue 83-217, Ottawa: Supply and Services Canada. (1976 data)

Statistics Canada (May 1987), Hospital Statistics Preliminary Annual Report, Catalogue 83-217, Ottawa: Supply and Services Canada. (1981/82-1985/86 data)

Statistics Canada (September 1967), Hospital Statistics Preliminary Annual Report, Catalogue 83-217, Ottawa: Supply and Services Canada. (1961 and 1966 data)

Statistics Canada (February 1973), Hospital Statistics Preliminary Annual Report, Catalogue 83-217, Ottawa: Supply and Services Canada. (1971 data)

Table 77A
Separations per 100,000
Adult and Child* by Sex
Selected Provinces and Canada
1979-1984

Males

	1979-80	1980-81	1981-82	1982-83	1984-85
Canada	12,591	12,539	12,391	12,401	12,264
Newfoundland	13,285	13,082	12,315	13,055	12,818
PEI	19,186	18,822	18,254	16,918	18,300
Nova Scotia	14,842	15,108	14,762	14,745	14,977
New Brunswick	14,515	14,319	14,503	14,703	14,524
Saskatchewan	18,066	17,764	18,098	18,305	17,262
Manitoba	13,306	13,198	13,563	13,657	13,053

Females

	1979-80	1980-81	1981-82	1982-83	1984-85
Canada	17,218	17,047	16,811	16,765	16,655
Newfoundland	19,336	19,546	18,411	19,317	18,814
PEI	23,323	22,889	22,969	21,639	21,806
Nova Scotia	19,200	18,995	18,671	18,795	18,812
New Brunswick	18,815	18,890	18,866	18,831	19,022
Saskatchewan	23,874	23,677	23,568	23,796	22,849
Manitoba	17,768	17,587	18,134	18,210	17,733

Note: * does not include newborn statistics.

Source: Statistics Canada (various years), Hospital Morbidity, Catalogue 82-206, Ottawa: Supply and Services Canada.

Table 77B
Separations per 100,000 by Type of Public Hospital
Selected Provinces and Canada
1981/82 and 1986/87

Non Teaching Hospitals (a)

	1981/82			1986/87		
	Number	Population	Rate	Number	Population	Rate
Canada	2,441,063	24341.7	10,028.3	2,433,832	25309.8	9,616.2
Newfoundland	63,965	567.6	11,269.4	53,163	568.3	9,354.7
PEI	25,576	122.5	20,878.4	24,663	126.6	19,481.0
Nova Scotia	92,988	874.4	10,634.5	95,713	873.1	10,962.4
New Brunswick	116,369	696.4	16,710.1	121,435	709.4	17,118.0
Saskatchewan	160,234	968.3	16,548.0	135,121	1014.0	13,325.5
Manitoba	106,741	1026.2	10,401.6	111,866	1079.0	10,367.6

Teaching Hospitals

	1981/82			1986/87		
	Number	Population	Rate	Number	Population	Rate
Canada	946,403	24341.7	3,888.0	1,060,013	25309.8	4,188.2
Newfoundland	18,740	567.6	3,301.6	31,024	568.3	5,459.1
PEI	---	122.5	---	---	126.6	---
Nova Scotia	34,538	874.4	3,949.9	38,939	873.1	4,459.9
New Brunswick	---	696.4	---	---	709.4	---
Saskatchewan	41,298	968.3	4,265.0	73,902	1014.0	7,288.2
Manitoba	49,510	1026.2	4,824.6	52,776	1079.0	4,891.2

Pediatric Hospitals

	1981/82			1986/87		
	Number	Population	Rate	Number	Population	Rate
Canada	87,481	24341.7	359.4	93,633	25309.8	369.9
Newfoundland	5,439	567.6	958.2	5,444	568.3	957.9
PEI	---	122.5	---	---	126.6	---
Nova Scotia	8,852	874.4	1,012.4	7,599	873.1	870.3
New Brunswick	---	696.4	---	---	709.4	---
Saskatchewan	---	968.3	---	---	1014.0	---
Manitoba	---	1026.2	---	---	1079.0	---

Psychiatric Beds (Short Term)

	1981/82			1986/87		
	Number	Population	Rate	Number	Population	Rate
Canada	---	24341.7	---	9487.0	25309.8	37.5
Newfoundland	---	567.6	---	---	568.3	---
PEI	---	122.5	---	---	126.6	---
Nova Scotia	---	874.4	---	1697.0	873.1	194.4
New Brunswick	---	696.4	---	---	709.4	---
Saskatchewan	---	968.3	---	---	1014.0	---
Manitoba	---	1026.2	---	112.0	1079.0	10.4

cont. ....

Table 77B CONTINUED
Separations per 100,000 by Type of Public Hospital
Selected Provinces and Canada
1981/82 and 1986/87

Other Speciality Hospitals

	1981/82			1986/87		
	Number	Population	Rate	Number	Population	Rate
Canada	44,479	24341.7	182.7	45,287	25309.8	178.9
Newfoundland	---	567.6	---	---	568.3	---
PEI	---	122.5	---	---	126.6	---
Nova Scotia	6,002	874.4	686.4	6,524	873.1	747.2
New Brunswick	---	696.4	---	---	709.4	---
Saskatchewan	---	968.3	---	---	1014.0	---
Manitoba	97	1026.2	9.5	96	1079.0	8.9

Rehabilitation (b)

	1981/82			1986/87		
	Number	Population	Rate	Number	Population	Rate
Canada	12,342	24341.7	50.7	15,948	25309.8	63.0
Newfoundland	269	567.6	47.4	220	568.3	38.7
PEI	192	122.5	156.7	---	126.6	---
Nova Scotia	361	874.4	41.3	381	873.1	43.6
New Brunswick	170	696.4	24.4	169	709.4	23.8
Saskatchewan	---	968.3	---	---	1014.0	---
Manitoba	---	1026.2	---	---	1079.0	---

Extended Care (c)

	1981/82			1986/87		
	Number	Population	Rate	Number	Population	Rate
Canada	32,986	24341.7	135.5	20,551	25309.8	81.2
Newfoundland	---	567.6	---	---	568.3	---
PEI	32	122.5	26.1	56	126.6	44.2
Nova Scotia	---	874.4	---	---	873.1	---
New Brunswick	---	696.4	---	---	709.4	---
Saskatchewan	1,299	968.3	134.2	989	1014.0	97.5
Manitoba	799	1026.2	77.9	1,284	1079.0	119.0

Psychiatric (Long Term)

	1981/82			1986/87		
	Number	Population	Rate	Number	Population	Rate
Canada	---	24341.7	---	19,723	25309.8	77.9
Newfoundland	---	567.6	---	1,155	568.3	203.2
PEI	---	122.5	---	---	126.6	---
Nova Scotia	---	874.4	---	1,037	873.1	118.8
New Brunswick	---	696.4	---	1,374	709.4	193.7
Saskatchewan	---	968.3	---	27	1014.0	2.7
Manitoba	---	1026.2	---	---	1079.0	---

cont. ...

Table 77B CONTINUED
Separations per 100,000 by Type of Public Hospital
Selected Provinces and Canada
1981/82 and 1986/87

Nursing Station, Outpost, Other

	1981/82			1986/87		
	Number	Population	Rate	Number	Population	Rate
Canada	1070.0	24341.7	4.4	961.0	25309.8	3.8
Newfoundland	1070.0	567.6	188.5	941.0	568.3	165.6
PEI	---	122.5	---	---	126.6	---
Nova Scotia	---	874.4	---	---	873.1	---
New Brunswick	---	696.4	---	---	709.4	---
Saskatchewan	---	968.3	---	---	1014.0	---
Manitoba	---	1026.2	---	---	1079.0	---

TOTAL PUBLIC HOSPITALS

	1981/82			1986/87		
	Number	Population	Rate	Number	Population	Rate
Canada	3,565,824	24341.7	14,649.0	3,699,435	25309.8	14,616.6
Newfoundland	89,483	567.6	15,765.2	91,947	568.3	16,179.3
PEI	25,800	122.5	21,061.2	24,719	126.6	19,525.3
Nova Scotia	142,741	874.4	16,324.5	151,890	873.1	17,396.6
New Brunswick	116,539	696.4	16,734.5	122,978	709.4	17,335.5
Saskatchewan	202,831	968.3	20,947.1	210,039	1014.0	20,713.9
Manitoba	157,147	1026.2	15,313.5	166,134	1079.0	15,397.0

Note: (a) Non teaching hospitals including those with and without long term care units.

(b) Rehabiliation includes convalescents.

(c) Extended care includes chronic.

Population figures are in thousands, with 1981 and 1986 figures used for 1981/82 and 1986/7 cells respectively. Thus, the rates generated in this table reflect the magnitude of separation rates, rather than absolute figures.

Source: Statistics Canada (various years), Hospital Statistics Preliminary Annual Report, Catalogue 83-217, Ottawa: Supply and Services Canada.

Table 78
Percent Occupancy* by Type of Public Hospital
Selected Provinces and Canada
Selected Years, 1975-1986/87

Non Teaching Hospitals (a)

	1975	1982/83	1983/84	1984/85	1985/86	1986/87
Canada	74.81	78.45	80.06	80.94	80.50	80.98
Newfoundland	69.00	65.27	63.29	62.38	67.43	66.42
PEI	71.54	76.71	79.47	79.89	78.38	79.90
Nova Scotia	75.23	68.55	70.94	73.36	70.98	70.68
New Brunswick	76.66	82.00	80.49	81.47	81.60	80.93
Saskatchewan	69.88	71.81	71.19	73.16	71.41	70.18
Manitoba	72.44	68.43	71.68	72.51	73.15	71.79

Teaching Hospitals

	1975	1982/83	1983/84	1984/85	1985/86	1986/87
Canada	79.36	82.10	83.31	82.00	83.66	83.59
Newfoundland	80.86	88.73	86.12	86.59	84.64	84.18
PEI	---	---	---	---	---	---
Nova Soctia	---	82.50	82.53	83.30	83.76	83.76
New Brunswick	75.10	---	---	---	---	---
Saskatchewan	75.39	83.47	83.89	80.36	84.07	85.00
Manitoba	---	77.99	79.28	79.97	81.18	81.52

Pediatric Hospitals

	1975	1982/83	1983/84	1984/85	1985/86	1986/87
Canada	61.59	67.91	68.76	68.19	68.23	68.41
Newfoundland	64.74	64.94	61.16	60.69	56.86	54.18
PEI	---	---	---	---	---	---
Nova Scotia	64.50	52.03	49.59	51.66	47.75	50.42
New Brunswick	---	---	---	---	---	---
Saskatchewan	---	---	---	---	---	---
Manitoba	---	---	---	---	---	---

Psychiatric Beds (Short Term)

	1975	1982/83	1983/84	1984/85	1985/86	1986/87
Canada	---	---	---	90.71	88.17	87.58
Newfoundland	---	---	---	---	---	---
PEI	---	---	---	---	---	---
Nova Soctia	---	---	---	91.06	86.03	83.39
New Brunswick	---	---	---	---	---	---
Saskatchewan	---	---	---	71.84	71.84	---
Manitoba	---	---	---	---	78.03	76.22

cont. ....

Table 78 CONTINUED
Percent Occupancy* by Type of Public Hospital
Selected Provinces and Canada
Selected Years, 1975-1986/87

Other Speciality Hospitals

	1975	1982/83	1983/84	1984/85	1985/86	1986/87
Canada	76.68	82.53	82.73	83.42	83.70	74.42
Newfoundland	21.44	---	---	---	---	---
PEI	---	---	---	---	---	---
Nova Scotia	77.89	76.52	77.26	79.99	81.31	80.21
New Brunswick	---	---	---	---	---	---
Saskatchewan	73.40	---	---	---	---	---
Manitoba	80.05	44.75	42.34	31.12	32.73	32.38

Rehabilitation (b)

	1975	1982/83	1983/84	1984/85	1985/86	1986/87
Canada	83.41	79.26	78.31	80.10	82.46	82.35
Newfoundland	52.53	33.21	31.55	27.95	28.69	24.85
PEI	72.70	---	---	---	---	---
Nova Scotia	96.60	94.61	95.61	94.64	94.92	94.90
New Brunswick	95.30	88.00	88.18	82.18	82.01	65.62
Saskatchewan	---	---	---	---	---	---
Manitoba	---	---	---	---	---	---

Extended Care (c)

	1975	1982/83	1983/84	1984/85	1985/86	1986/87
Canada	93.12	93.55	94.75	93.57	95.14	94.96
Newfoundland	99.04	---	---	---	---	---
PEI	---	88.71	78.19	97.23	96.67	95.58
Nova Soctia	---	---	---	---	---	---
New Brunswick	---	---	---	---	---	---
Saskatchewan	94.63	89.82	90.04		89.66	88.74
Manitoba	88.97	93.91	82.77	97.91	89.73	90.26

Psychiatric (Long Term)

	1975	1982/83	1983/84	1984/85	1985/86	1986/87
Canada	---	---	---	90.15	90.41	91.06
Newfoundland	---	---	---	96.04	94.26	91.74
PEI	---	---	---	---	---	---
Nova Scotia	---	---	---	79.98	80.23	87.39
New Brunswick	---	---	---	83.28	82.58	79.55
Saskatchewan	---	---	---	97.16	91.05	88.68
Manitoba	---	---	---	---	---	---

cont. ....

Table 78 CONTINUED
Percent Occupancy* by Type of Public Hospital
Selected Provinces and Canada
Selected Years, 1975-1986/87

Nursing Station, Outpost, Other

	1975	1982/83	1983/84	1984/85	1985/86	1986/87
Canada	---	6.69	14.55	9.48	9.32	13.23
Newfoundland	---	6.89	15.76	12.39	11.06	14.26
PEI	---	---	---	---	---	---
Nova Scotia	---	---	---	---	---	---
New Brunswick	---	---	---	---	---	---
Saskatchewan	---	---	---	---	---	---
Manitoba	---	5.56	---	3.14	4.62	---

TOTAL PUBLIC HOSPITALS

	1975	1982/83	1983/84	1984/85	1985/86	1986/87
Canada	77.74	81.90	83.32	83.48	83.83	83.80
Newfoundland	73.73	69.62	70.56	73.44	74.79	73.62
PEI	71.58	77.46	79.36	81.34	79.91	81.21
Nova Scotia	76.16	72.07	73.41	76.43	74.65	74.53
New Brunswick	76.31	82.03	80.52	81.78	81.77	80.65
Saskatchewan	74.42	74.66	74.27	75.65	75.56	75.53
Manitoba	74.83	72.70	74.70	76.23	76.47	75.79

Note: (*) Percent occupancy based on approved number, not operating number of beds for reporting hospitals.

(a) Non teaching hospitals including those with and without long term care units.

(b) Rehabiliation includes convalescents.

(c) Extended care includes chronic.

Source: Statistics Canada (various years), Hospital Statistics Preliminary Annual Report, Catalogue 83-217, Ottawa: Supply and Services Canada.

Table 79
Average Length of Stay by Type of Public Hospital
Selected Provinces and Canada
Selected Years, 1976-1987/88

Non Teaching Hospitals (a)

	1976	1984/85	1985/86	1986/87	1987/88
Canada	8.77	10.17	10.20	10.78	10.10
Newfoundland	6.92	7.28	7.58	7.41	7.34
PEI	7.36	7.06	7.05	8.11	---
Nova Scotia	8.81	9.27	9.21	8.79	8.41
New Brunswick	9.04	10.55	10.75	10.43	10.23
Saskatchewan	7.63	8.43	8.88	8.92	7.88
Manitoba	8.87	8.60	8.79	9.36	8.49

Teaching Hospitals

	1976	1984/85	1985/86	1986/87	1987/88
Canada	10.47	11.40	10.99	11.02	11.12
Newfoundland	10.18	10.82	10.94	10.91	11.38
PEI	---	---	---	---	---
Nova Soctia	---	12.68	12.52	11.87	11.83
New Brunswick	16.02	---	---	---	---
Saskatchewan	10.42	9.97	8.28	8.73	7.73
Manitoba	---	12.24	12.26	11.21	10.97

Pediatric Hospitals

	1976	1984/85	1985/86	1986/87	1987/88
Canada	7.01	7.52	7.24	7.31	7.75
Newfoundland	9.27	8.23	8.70	8.21	8.31
PEI	---	---	---	---	---
Nova Scotia	8.06	6.53	7.46	7.10	8.02
New Brunswick	---	---	---	---	---
Saskatchewan	---	---	---	---	---
Manitoba	---	---	---	---	---

Psychiatric Beds (Short Term)

	1976	1984/85	1985/86	1986/87	1987/88
Canada	---	40.41	44.73	54.05	34.66
Newfoundland	---	---	---	---	---
PEI	---	---	---	---	---
Nova Soctia	---	58.88	64.52	63.97	---
New Brunswick	---	---	---	---	---
Saskatchewan	---	48.10	53.48	---	---
Manitoba	---	---	91.50	63.90	---

cont. ....

Table 79 CONTINUED
Average Length of Stay by Type of Public Hospital
Selected Provinces and Canada
Selected Years, 1976-1987/88

Other Speciality Hospitals

	1976	1984/85	1985/86	1986/87	1987/88
Canada	9.54	22.38	14.77	7.75	6.92
Newfoundland	4.42	---	---	---	---
PEI	---	---	---	---	---
Nova Scotia	6.15	---		5.79	5.68
New Brunswick	---	---	---	---	---
Saskatchewan	---	---	---	---	---
Manitoba	10.80	32.84	26.89	30.49	24.11

Rehabilitation (b)

	1976	1984/85	1985/86	1986/87	1987/88
Canada	41.93	46.66	47.17	46.74	44.53
Newfoundland	40.95	15.59	18.45	16.82	
PEI	27.12	---	---	---	---
Nova Scotia	21.25	45.24	48.30	49.82	44.44
New Brunswick	38.17	26.87	30.06	28.26	36.61
Saskatchewan	---	---	---	---	---
Manitoba	---	---	---	---	---

Extended Care (c)

	1976	1984/85	1985/86	1986/87	1987/88
Canada	291.86	266.41	293.01	295.20	268.08
Newfoundland	342.62	---	---	---	---
PEI	---	199.38	753.61	423.43	---
Nova Soctia	---	---	---	---	---
New Brunswick	---	---	---	---	---
Saskatchewan	644.97	97.00	86.06	75.51	---
Manitoba	167.71	107.61	123.77	101.17	70.44

Psychiatric (Long Term)

	1976	1984/85	1985/86	1986/87	1987/88
Canada	---	134.47	172.23	248.71	285.55
Newfoundland	---	50.91	139.02	86.87	112.77
PEI	---	---	---	---	---
Nova Scotia	---	39.53	16.56	---	---
New Brunswick	---	221.20	257.58	216.42	167.23
Saskatchewan	---	---	3815.21	4612.37	---
Manitoba	---	---	---	---	---

cont. ....

Table 79 CONTINUED
Average Length of Stay by Type of Public Hospital
Selected Provinces and Canada
Selected Years, 1976-1987/88

Nursing Station, Outpost, Other

	1976	1984/85	1985/86	1986/87	1987/88
Canada	---	1.69	1.64	1.80	---
Newfoundland	---	1.83	1.82	1.82	---
PEI	---	---	---	---	---
Nova Scotia	---	---	---	---	---
New Brunswick	---	---	---	---	---
Saskatchewan	---	---	---	---	---
Manitoba	---	1.03	1.00	---	---

TOTAL PUBLIC HOSPITALS

	1976	1984/85	1985/86	1986/87	1987/88
Canada	11.90	13.56	13.40	13.85	13.47
Newfoundland	8.64	9.27	10.69	9.91	12.95
PEI	7.55	7.41	8.95	9.05	---
Nova Scotia	9.70	10.91	10.89	10.10	9.52
New Brunswick	10.73	12.84	13.41	12.76	12.36
Saskatchewan	9.98	9.14	10.54	9.87	7.83
Manitoba	10.67	10.41	9.61	10.80	9.53

Note: (a) Non teaching hospitals including those with and without long term care units.

(b) Rehabiliation includes convalescents.

(c) Extended care includes chronic.

Source: Statistics Canada (various years), Hospital Statistics Preliminary Annual Report, Catalogue 83-217, Ottawa: Supply and Services Canada.
Statistics Canada (April 1987 - March 1988), Quarterly Information System, Hospital Indicators, Catalogue 83-002, Ottawa: Supply and Services Canada.

Table 80
Inpatient Days per Capita
Selected Provinces and Canada
1979/80, 1980/81 and 1984/85

Inpatient Days per Capita	1979/80	1980/81	1984/85
Canada	1.71	1.77	1.66
Newfoundland	1.41	1.41	1.39
PEI	1.52	1.51	1.57
Nova Scotia	1.65	1.66	1.61
New Brunswick	1.82	1.79	1.81
Saskatchewan	2.03	2.09	1.64
Manitoba	1.69	1.81	1.64

Source: Statistics Canada (various years), Hospital Statistics Preliminary Annual Report, Catalogue 83-217, Ottawa: Supply and Services Canada.

Statistics Canada (various years), Hospital Morbidity, Catalogue 82-206, Ottawa: Supply and Services Canada.

Table 81
Abortion Statistics
Selected Provinces and Canada
Various Years

A. Number of Therapeutic Abortions by Province of Residence, 1982-1986
(Number)

	1971	1976	1981	1982	1983	1984	1985	1986
CND			65,053	66,254	61,750	62,247	62,712	63,462
NFLD			470	457	483	382	415	367
PEI			27	26	14	12	11	13
NS			1,689	1,691	1,678	1,703	1,698	1,704
NB			444	243	277	278	310	358
SASK			1,627	1,622	1,398	1,214	1,173	1,048
MAN			1,610	1,728	1,689	2,226	2,285	2,568

B. Rates of Therapeutic Abortions By Province of Residence, 1971-1986
(per 1,000 Females 15-44)

	1971	1976	1981	1982	1983	1984	1985	1986
CND	6.6	10.3	11.1	11.1	10.2	10.2	9.9	10.2
NFLD	0.7	3.4	3.5	3.4	3.4	2.7	2.9	2.5
PEI	1.8	2.3	1.0	0.9	0.5	0.4	0.4	0.4
NS	4	6.9	8.5	8.4	8.2	8.2	8.0	8.0
NB	1.1	2.7	2.7	1.5	1.6	1.6	1.8	2.0
SASK	4.2	6.0	7.7	7.5	6.4	5.4	5.1	4.6
MAN	4.1	6.3	6.9	7.3	7.0	9.1	9.2	10.2

C. Rates of Therapeutic Abortions By Province of Residence, 1971-1986
(per 100 live births)

	1971	1976	1981	1982	1983	1984	1985	1986
CND	8.5	15.1	17.5	17.8	16.5	16.5	16.2	17.0
NFLD	0.6	3.8	4.6	5.0	5.4	4.5	4.9	4.5
PEI	1.9	2.9	1.4	1.4	0.7	0.6	0.5	0.7
NS	4.5	9.7	14.0	13.7	13.5	13.8	13.6	13.8
NB	1.2	3.4	4.2	2.3	2.6	2.7	3.1	3.7
SASK	4.7	7.1	9.5	9.2	7.8	6.7	6.5	6.0
MAN	4.6	8.3	10.0	10.7	10.2	13.4	13.4	15.1

D. Teenage Therapeutic Abortion Rates*, 1975-1986
(Rate per 1,000 females*)

	CND	NFLD	PEI	NS	NB	SASK	MAN
1975	13.7	1.7	0.1	9.4	4.8	12.8	9.4
1976	14.6	5.0	0.9	11.5	4.4	10.8	9.9
1977	15.3	6.6	2.9	11.7	4.2	11.5	10.8
1978	16.3	6.2	2.9	12.7	4.8	14.3	12.8
1979	17.0	8.0	3.2	13.3	4.9	14.1	10.8
1980	16.9	6.2	2.0	14.0	5.4	13.7	10.6
1981	16.2	5.3	1.4	13.5	4.9	13.5	11.1
1982	16.2	5.2	1.5	14.2	2.5	12.6	11.8
1983	14.7	5.2	0.3	12.9	3.0	11.0	10.9
1984	14.7	4.4	0.7	13.2	2.5	10.4	14.7
1985	14.5	5.1	0.4	12.9	3.1	7.9	16.1
1986	15.0	3.7	0.4	12.5	3.8	7.8	17.0

Note: * rates are based on all therapeutic abortions under 20 years and the female population aged 15-19 years.

E. Percentage of Women Who Obtained Abortions in a Province Other Than Their Province of Residence, 1976-1986
(Percentage)

	CND	NFLD	PEI	NS	NB	SASK	MAN
1976	0.8	4.5	5.3	1.7	5.8	7.7	1
1977	0.9	4.5	9.3	1.2	5.4	7.5	0.8
1978	0.9	3.9	16.7	1.0	6.6	4.4	1.2
1979	0.9	2.9	17.4	0.7	6.0	2.6	0.9
1980	1.1	10.6	39.1	1.0	4.7	2.8	1.4
1981	0.9	24.7	77.8	0.8	3.6	1.5	1.4
1982	0.8	17.3	76.9	0.4	9.5	1.4	1.2
1983	0.7	14.9	100.0	0.4	5.1	2.1	0.4
1984	0.7	10.2	100.0	0.4	5.0	2.3	0.3
1985	0.8	7.7	100.0	0.4	6.8	4.1	—
1986	1.0	25.6	100.0	0.4	9.2	10.7	0.2

Source: Statistics Canada (1986), Therapeutic Abortions, Catalogue 82-211, Ottawa: Supply and Services Canada.

Statistics Canada (1985), Therapeutic Abortions, Catalogue 82-211, Ottawa: Supply and Services Canada.

Table 82
Office Visits to Physicians and Rate per 1,000 Population
Canada, Eastern and Western Regions
1980/81 - 1985/86

	1980/81	1981/82	1982/83	1983/84	1984/85	1985/86
Canada						
Number	95,431,408	97,134,341	102,355,727	105,438,817	108,193,781	111,215,273
(Per 1,000)	3,969	3,990	4,164	4,254	4,332	4,419
Eastern Region						
Number	7,145,852	7,230,782	7,445,093	7,664,823	8,013,372	8,297,056
(Per 1,000)	3,206	3,237	3,332	3,399	3,530	3,642
Western Region						
Number	25,564,572	26,592,969	28,601,058	29,675,736	30,435,977	31,744,412
(Per 1,000)	3,765	3,812	4,021	4,129	4,203	4,354

Note: "Office Visits" include initial and other office visits, and covers partial/minor/subsequent examiniations, psychotherapy, special eye examinations, well baby care, and other examinations.

"Eastern Region" includes Newfoundland, Prince Edward Island, Nova Scotia and New Brunswick.

"Western Region" includes Manitoba, Saskatchewan, Alberta and British Columbia.

Source: Health and Welfare Canada (1987), Utilization of Physician Services, Canada by Region, 1980-81 to 1984-85, Ottawa.

Health and Welfare Canada (1988), National Grouping System: Interim Report 1985-86, Ottawa.

Table 83
Seven Surgical Procedures
Rates per 100,000 Population
Selected Provinces and Canada
1984-85

	CANADA	NFLD	PEI	NS	NB	SASK	MAN
Cesarean Sections	514	608	258	497	535	556	459
Hysterectomies	378	505	279	342	374	299	341
Gall Bladders							
Males	131	80	77	137	133	120	140
Females	318	336	181	367	364	303	308
Appendectomies							
Males	137	167	161	138	148	154	150
Females	112	130	156	126	109	123	112
Hernia Repairs							
Males	376	239	332	337	375	352	362
Females	50	31	41	40	59	48	50
Prostatectomies	254	114	73	219	287	307	232
Tonsillectomies							
Males	55	94	70	71	82	92	74
Females	101	176	112	122	144	144	121

Source: Statistics Canada (various years), Surgical Procedures and Treatments, 1979-80, 1980-81, 1984-85, Ottawa: Supply and Services Canada.

Table 84
Institutionalization of the Elderly
International Comparisons, 1980's

	Total	Medical Facilities	Non Medical Facilities
		(Percent)	
United States (1980)	5.7	4.5	1.2
Argentina (1984)	< 0.1	N/A	N/A
Australia (1981)	6.4	4.9	1.5
Belgium (1981-83)	6.3	2.6	3.7
Canada (1980)	8.7	7.1	1.6
Costa Rica (1980)	1.5-2.0	N/A	1.5-2.0
Denmark (1980)	7.0	N/A	N/A
France (1982)	6.3	5.3	1.0
FRG (1980)	3.6-4.5	1.2-3.6	0.9-2.4
Greece (1982)	0.5	N/A	0.5
Israel (1981)	4.0	1.4	2.6
Japan (1981)	3.9	3.1	0.8
Netherlands (1982-83)	10.9	2.9	8.0
New Zealand (1982-83)	6.3-6.7	2.4-2.8	3.9
Spain (1982)	2.0	N/A	2.0
Sweden (1980)	8.7-10.5	4.6	4.1-5.9
Switzerland (1982)	7.8-9.0	2.8	5.0-7.2
Turkey (1984)	< 0.2	N/A	N/A

Note: FDR is the Federal Republic of Germany.
N/A not available.

Institutionalization was defined as "extended stays in any type of inpatient facility or residential care setting."

Medically oriented residential facilities were defined as chronic care hospitals, geriatric wings of acute care hospitals, nursing homes and rehabilitation hospitals.

Non Medical residential facilities included homes for the aged, frail ambulant homes, personal care homes, board and care homes.

Source: Doty, Pamela, 1988, "Long-term care in international perspective," Health Care Financing Review, Annual Supplement, p. 149.

APPENDIX B

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REFERENCES[1]

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[1] In addition to the data sources referenced in the Tables.

FISCAL FEDERALISM FROM THE PERSPECTIVE OF NOVA SCOTIA

FINAL REPORT

Submitted to the
Nova Scotia Royal Commission
on Health Care

May 1989

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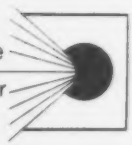

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FISCAL FEDERALISM: AN OVERVIEW OF THE ISSUES

Introduction

Fiscal federalism refers to the relationships between the federal government and the provincial governments rather than individuals and the private sector directly. Fiscal federalism in Canada, to a considerable extent, is the result of, and reflects, the distribution of de facto powers between Ottawa and the provinces. Federal spending power has been aptly described as the "single most dynamic element of Canadian federalism" (Cameron and Dupré, 1983, 340). The relationship between fiscal federalism and the emergence and growth of the welfare state has been a subject of much analysis in Canada and elsewhere. It has frequently been argued that the decentralized nature of the Canadian federation in the 1930s was a conservative force in welfare state politics and inhibited the introduction and development of essential social policies. The growth of federal fiscal capacity in the post-war period facilitated the expansion of the federal government's role in establishing major social programs in the next two decades. Indeed, the present day Canadian welfare state was erected in large measure through national shared-cost programs made possible by the federal spending power. The major social programs in Nova Scotia and New Brunswick (indeed Atlantic Canada generally), especially health care services, are in whole or in part, shaped by these shared-cost programs.

In the annals of fiscal federation in Canada, the spending power has spawned a plethora of federal transfers to individuals (eg. adult training allowances, family allowances, old age security) to institutions (eg. universities, municipalities) and to provinces through a myriad of

bilateral and national shared-cost programs, and unconditional equalizational payments. The exercise of this spending power has undergone marked change and transformation, especially since 1977, with the introduction of the Established Program Financing Act. The transformation is the result of various compromises and in some instances, determined and politically forceful provincial opposition.

Federal spending power is the basis of national shared-cost programs, the largest of which covers health care services. The essential details of these programs is appropriately left for discussion in later sections of the report. Provincial participation in these national shared-cost program is voluntary. However, the significant financial loss of refusal meant that provinces were virtually forced to participate in these shared-cost programs. Many of these national shared-cost programs, the most important example again being the health care programs, are within provincial jurisdiction, and require provincial legislation for their implementation. These shared-cost programs thus constituted a heavy influence by the federal government on provincial legislative and spending priorities. This is specially true of health policy and program developments in Nova Scotia, New Brunswick and Prince Edward Island.

The Constitution Act of 1867 was, of course, designed for a radically different society and situation than the contemporary one. Problems that were judged to be of local concern, with the passage of time become national concerns, or at least, admit and sometimes require national action and resolution. Other problems are rather complex and fall between the cracks in the constitutional order. The spending power has often served as

a tool for responding to such situations in lieu of constitutional change. However, consitutional changes affecting fiscal federalism have been accomplished as recently as 1982 and other modifications have been proposed in the Meech Lake Accord. Specifically Section 7 of the Accord would add section 106A to the Constitution Act, 1867. This section guarartees a province "reasonable compensation" for opting-out of future national shared-cost programs, provided the province undertakes an "initiative" "compatible with the national objectives". The meaning and significance of this section of the Meech Lake Accord will be fully discussed later in the report.

Basic Fiscal Problems in Federations

The two basic fiscal problems that are common to all federal systems of government are (a) balancing the fiscal resources of the national (central) and provincial (state, regional) governments with the constitutional responsibilities assigned to each level, and (b) reducing, if not removing, the disparities in the fiscal capacities of the respective government constituting the federation. The first of these problems is often referred to as the "vertical fiscal imbalance". Its solution consists of one or a combination of responses: (a) the two levels of government divide the revenue sources appropriately and harmonize the cultivation of these revenue sources so that the overall tax burden on certain categories of individual and corporate taxpayers is not excessive or inequitable, (b) revenue sharing agreements, (c) transfers from the revenue-rich governments (usually federal) to the other level, and (d)

constitutional change to reallocate jurisdictional responsibilities. Fiscal federalism entails the first three of these four approaches to the problem of vertical fiscal imbalance. The second problem described above is often referred to as "horizontal fiscal imbalance". Fiscal transfers are thus necessitated to ensure that the provincial governments in lower income and revenue-capacity regions of the federation are able to provide their residents with a level of public services reasonably similar to that provided by the other provincial governments without having to impose unduly high tax rates. Obviously, the fiscal federalism issues generated by both the vertical and horizontal fiscal imbalances are massively important to Nova Scotia and Atlantic Canada, and of course, any other so-called "have-not" province, such as Saskatchewan, Manitoba and Quebec.

Yet another basic problem in fiscal federalism is the harmonization of economic and taxation policies between the two levels of government in order to achieve a number of economic objectives. Canada has been particularly successful in harmonizing personal and corporate income taxes (Department of Finance, 1980, 7-8), as compared to the situation in the United States. From a fiscal perspective, federal spending power, and thus the range of conditional and unconditional grants or transfers, is a necessary adjunct to a federal system of government. The substantive issue is to proscribe, constitutionally or otherwise, the limits of the use of the federal spending power. This is indeed one of the principal purposes of the Meech Lake Accord.

The history of fiscal federalism in Canada is marked by significant shifts in the fiscal capacities of the two levels of governments. Even

with hindsight, it would have been difficult to devise a fiscal regime where revenue sources and public policy responsibilities of the provincial and federal governments remained balanced. There have been marked shifts in policy priorities and the corresponding resource allocation decisions at both levels of government. The provinces are constitutionally restricted to direct taxes. More importantly, there are economic limits to their capacity to raise revenue and it is probable that many of them, and most certainly the Atlantic provinces, will continue to face the fiscal imbalances that hitherto characterize their public finances. While this reality of fiscal federalism is widely acknowledged, there are major differences of opinion about the degree to which fiscal imbalances should be alleviated, and the optimal mix of instruments that should be employed to attain the desired fiscal balance. Some prefer the almost exclusive use of unconditional equalization payments. Others prefer the wider use of conditional shared-cost programs. Canadian fiscal federalism is presently characterized by a mixture of the two perspectives. There are strongly held political and social philosophies underpinning these perspectives, especially attitudes about the nature and degree of centralization or decentralization that is desirable in Canada. Some of these differences cannot be resolved through appeals to socio-economic analyses.

The specific design of federal fiscal transfers (especially shared-cost programs) to provinces is crucially important, both for fiscal reasons and their implications for the services the programs are meant to cover. The debates surrounding the Established Programs Financing Act revealed that once health care is almost wholly publicly financed, health care

issues per se become relatively unimportant part of the considerations and discussions concerning program financing and design. That is, public finance considerations become the dominant issues relative to the substantive program and service delivery issues. Correspondingly program service experts "become less influential in the highest level decisions and power passes to public finance specialists, provincial treasurers, federal finance ministers and their premiers, prime ministers and their advisors" (Van Loon, 1978, 465).

Revenue sharing and the fiscal gap

Debate over revenue sharing has been central to discussions over fiscal federalism in Canada. Provinces have usually argued that they suffer from a "fiscal gap", that is, they have insufficient access to revenue sources to meet their heavy and rapidly escalating responsibilities, and/or that the federal government has pre-empted certain revenue sources. The federal government counterargues that it requires and must maintain an appropriate share of total government revenues and expenditure in order to properly regulate and manage the economy and to pursue social objectives in the national interest. Provinces do, in any case, have access to all forms of direct taxation, that is they cannot levy indirect tax (for eg. the manufacturer sales tax or customs and excise tax). They can and do levy retail sales tax and other consumption taxes (eg. tobacco, alcohol). Provinces find it politically more difficult to raise retail sales tax revenue. As well, there are economic constraints to the provinces raising greater revenue through personal income and corporate

income taxes. These political and economic constraints certainly apply to the Atlantic provinces.

Currently, the capacity of the federal government to significantly give more tax room to the provinces has been constrained by the huge deficits in the seventies and eighties. It should be noted that federal revenue after transfers to the provinces as a percentage of total government revenues, have declined from about 69% in 1945, to about 34 percent in the 1980's. The share of federal government expenditures after transfers has declined from about 61% in the early 1950's to about 40% in the 1980's. The decline in the federal share of expenditure has been less drastic than the fall in revenues, the difference being accounted for by rising deficits in the recent years.

With these realities in mind, and contrary to conventional perceptions, the federal government began to claim that there is a vertical fiscal imbalance - a fiscal gap - against it, and in 1980 approached the quinquennial renewal of the Fiscal Arrangement Act in 1982 with the view of reducing federal transfers to the provinces. This claim has been subjected to critical scrutiny by the Economic Council of Canada and a Parliamentary Task Force on Federal-Provincial Fiscal Arrangements. The details of the analysis is left for discussion at a more appropriate juncture later in the report. Suffice to note at this point that both analyses concluded that the federal claim of a fiscal gap against it is not valid. It is not a longterm structural economic problem and fiscal transfers did not play a significant role in the escalating federal deficits up to that point (and this is, as will be shown later in the report, equally true for the 1980s).

Rather, the deficits were attributable to weakness in the economy, discretionary tax measures introduced by the federal government in the 1970s, fiscal policy choices to maintain aggregate demand, and rapidly rising costs due to its policy of subsidizing oil imports through the Oil Import Compensation Program (Economic Council of Canada, 1982, 6). The Council concluded that it found "no compelling argument in support of the federal government's proposed reduction in net transfers to the provinces." (Economic Council of Canada, 1982, 9).

The federal government has turned over to the provinces room in various tax fields, particularly the personal income tax, and to a lesser extent, corporate income tax, in order to reduce the vertical fiscal imbalance mentioned earlier. Will this trend continue? Several factors suggest that it is unlikely, as will be argued more fully later. Briefly, the major social programs are essentially completed and in place. Also, it appears that all governments are attempting to constrain expenditures. The new majority Tory government is said to be more determined that ever to reduce the federal budgetary deficits. Several provinces including Nova Scotia, New Brunswick and Saskatchewan have expressed concern about their budgetary deficits. Under the current fiscal environment major new social spending programs are not likely, especially ones that will necessarily involve significant transfers from Ottawa to the provinces. Fiscal policy considerations to regulate economic activity and inflation also suggest that the past trend is not likely to continue. Finally, since ownership of natural resources is vested in provincial governments, they have the capacity to derive revenues from royalties and exploration and development

leases. Indeed, an examination of public finances in the 1980's suggests that to the extent that there is a "fiscal imbalance" in Canada, it is between resource-rich provinces (eg. Alberta) and other governments, both provincial and federal. It will be noted here that the issue of ceding even further tax room to the provinces also comes up in the context of existing national conditional block transfers, specifically the Established Programs Financing Act covering health services and post-secondary education, and shared-cost programs such as the Canada Assistance Plan. This issue is discussed in the appropriate context in later sections of this report.

The Importance of Federal Transfers

Federal transfers are, of course, of varying significance to the different provinces. As measured by the percentage of total provincial revenues, federal transfers are a low of about 12% for Alberta to a high of about 55% for Newfoundland. Prince Edward Island ranks the highest in terms of the per capita transfers, followed by Newfoundland. Nova Scotia ranks fourth and New Brunswick, third, as can be seen from Table 1.1. Interestingly, the per capita federal transfers to Saskatchewan is actually slightly below the national average, even though Saskatchewan is a "have-not" province. Nova Scotia also ranks fourth in terms of the importance of federal fiscal equalization payments in relation to its own revenues or total provincial revenue including federal transfers. This is shown in Table 1.2 for the fiscal year 1987-88 though the picture is much the same for other years. Table 1.2 illustrates a basic reality of fiscal federalism

Table 1.1

Federal Transfers to the Provinces for Fiscal Year 1987-88

Provinces	Total[1] Transfers $ Millions	Population in Thousands	Transfers per capita
Newfoundland	1,195.4	568.2	2,103.8
P.E.I.	262.7	127.3	2,299.2
Nova Scotia	1,402.7	878.9	1,596.0
New Brunswick	1,310.5	712.3	1,839.8
Saskatchewan	1,057.1	1,014.0	1,042.5
All provinces and Territories	29,767	25,625.1	1,161.6

[1] The sums shown in this table include all cash plus tax transfers and include principally fiscal equalization transfers, EPF cash and tax transfers for medicare, extended health care services and post-secondary education; Canada Assistance Plan; and a variety of small general and specific purpose transfers.

Sources: Federal Provincial Programs and Activities: A Descriptive Inventory 1987-88, Minister of Supply and Services, Ottawa, 1988, and Established Programs Financing 1988-89, Department of Finance, Ottawa, July 1988.

Table 1.2

The Significance of Federal Fiscal Equalization Transfers in 1987-88 to Atlantic Provinces

Province	Fiscal Equalization Transfers ($ Millions)	As a Percent of Provincial Government Revenue		As a Percent of Total Federal Transfers[3]
		Own Source[1]	Total[2]	
Newfoundland	792	54.6	28.9	61.2
P.E.I.	157	51.7	28.0	57.5
Nova Scotia	721	28.7	20.2	46.6
New Brunswick	720	37.1	22.1	51.0
Saskatchewan	258	4.2	3.2	13.4
Canada	6,443	65	5.1	18.8

1 Own-source means all federal transfers are excluded.

2 Total revenues include all federal transfers.

Sources: Fiscal Equalization Payments 1987-88, Department of Finance, July 1988; Minister of Supply and Services, June 1988; and Statistics Canada.

in Canada and that is, that equalization payments account for strikingly high proportions of total federal transfers and government revenues in the four Atlantic provinces. Again, federal fiscal equalization payments as a proportion of its own revenues or total revenues is much lower for Saskatchewan than for the Atlantic provinces.

The equalization payments are a response to the goal of fiscal equity that is now formally embodied in the 1982 Constitution, but which has been a major goal from the early fifties. The importance of fiscal federalism in Canada can be simply and dramatically illustrated with reference to tables 1.3 and 1.4. Table 1.3 presents indices of the provinces' capacity to raise revenues from taxes of all kinds, including revenues raised by their local governments. The indices include revenues from the sale of natural resources and natural resources rights. Table 1.4 illustrates the effect ofthe federal equalization program. It shows provinces' revenue capacity from their own sources and the federal fiscal equalization transfers. In both tables an index of 100 represents the national average and the indices are directly proportional to the national average. For example, in 1982-83 Nova Scotia's fiscal capacity was 31 percent (100 minus 69) below the national average (Table 1.3). Its revenue capacity with federal equalization payment was 12 percent (100 minus 88) below the national average (Table 1.4).

Some economists have argued that this equalization program prevents the efficient allocation of resources in Canada because it leads to the uneconomic retention of capital and labour in provinces where their productivity is low. The quantitative significance of these transfers to

Table 1.3

Indices of Provincial Fiscal Capacity For All Revenues[1] from Own Sources[2]

	Province	1982-83	1983-84	1984-85	1985-86
1.	Alberta	211	206	208	200
2.	Saskatchewan	106	108	109	105
3.	British Columbia	108	105	107	104
4.	Ontario	96	97	96	98
5.	Manitoba	81	81	81	81
6.	Quebec	77	77	78	79
7.	Nova Scotia	69	71	71	72
8.	New Brunswick	67	67	66	67
9.	Prince Edward Island	58	60	59	61
10.	Newfoundland	60	59	58	60
	All Provinces	100	100	100	100

[1] Includes taxes and revenues from natural resources.

[2] Includes revenues from taxes levied by local governments.

Sources: Department of Finance, Federal-Provincial Relations Division, Ottawa.

Table 1.4

Indices of Provincial Fiscal Capacity for All Revenues From Own Sources Plus Fiscal Equalization Transfers

Rank 1985-86	Province	1982-83	1983-84	1984-85	1985-86
1.	Alberta	196	192	194	188
2.	Saskatchewan	99	100	102	98
3.	British Columbia	100	98	99	98
4.	Ontario	89	90	89	92
5.	Manitoba	90	90	90	88
6.	Quebec	87	87	87	87
7.	Nova Scotia	88	90	89	87
8.	New Brunswick	87	87	85	87
9.	Prince Edward Island	88	90	87	87
10.	Newfoundland	85	85	85	87
	All Provinces	100	100	100	100

Source: Federal-Provincial Relations Division, Department of Finance, Ottawa.

the Atlantic provinces, has reduced them to a State of dependency and have retarded their economic growth. It is further alleged that these transfers encourage the have-not provinces to pursue policies that is detrimental to their long-term economic well-being, inasmuch as the transfers embody incentives that shields the provinces from bearing the full economic and political costs of legislation that maintains regional disparities (Courchene, 1978). The central argument of this "dependency" view is that federal fiscal transfers reduces labour mobility. Simply stated, the have-not regions have an excess supply of labour and consequent low wage and high unemployment. This is tolerated because federal transfers finance essential social and health services and income transfers thus reducing theincentive to work or move to other regions of Canada. However, just how responsive labour mobility is to economic differentials between provinces and to federal transfers in particular, is still an unknown and contentious issue. In fact, it can be argued that labour mobility is potentially a 'disequalizer'. Migrants tend to be more skilled, younger, better educated and most importantly, more entrepreneurial. The loss of such labour leaves the remaining work force worse off economically.

In direct opposition to dependency view expressed above, the Economic Council of Canada made a persuasive argument in support of equalization payment on the grounds of economic efficiency. It argued that federal equalization payments are "essential to the efficient functioning of the economy. If factors of production are to be allocated as productively as possible, an equalization program is needed to offset the (distorting)

effects of provincial net fiscal benefits on the movement of such factors" (Economic Council of Canada, 1982, 36) referring especially to labour.

In the following sections, we examine the major federal fiscal transfers in Canada, dealing first with those relating to health services, then in succession with the Canada Assistance Plan, Equalization Payments and Post-Secondary Education. This discussion is followed by a presentation of several policy, economic and constitutional developments that may have a significant implications for federal-provincial fiscal relations in the future. In the final section we present a summary of the conclusions and offer a few recommendations concerning fiscal federalism in Canada.

FISCAL FEDERALISM AND HEALTH CARE PROGRAMS

Federal-provincial fiscal relations has been one of the main determinants of the changing nature of Canadian health programs and policies. This is particularly true of some provinces, including Nova Scotia, New Brunswick and Prince Edward Island. In very broad terms, health policy developments in relation to fiscal federalism can be divided into four distinct stages. The first stage, from 1867 to 1945, could be described as one of benign neglect, where federal initiatives were few and small and largely unaffected by the oscillation of power between the two levels of government (Moore et al, 1966). Indeed, governments in Canada had a lower profile in health care than those in the United Kingdom and the United States (Torrance, 1981). The second stage from 1945 to 1977 could be termed the era of the shared-cost agreements. In incremental, staged steps Canada developed a system of national health insurance in response to inadequacies of the earlier period, notably the problems of the inaccessibility of health care services by certain socio-economic and regional populations and the uncertain and sometimes precarious financial underpinnings of segments of the health care system, notably hospitals (Weller and Manga, 1982, Andreopoulos, 1975).

Federal-Provincial Shared-Cost Programs

There are numerous detailed and excellent histories of what we have called the shared-cost era (Taylor, 1978; Shillington, 1972; Swartz, 1977; Meilicke and Storch, 1980). Only the essential initiatives and their

details involving federal-provincial fiscal arrangements pertinent to the themes of this report are offered here.

In 1948, the federal government instituted a system of grants, which it referred to as 'a fundamental prerequisite of a nationwide system of health insurance' (Weller and Manga, 1982, 227). This National Health Programs Act consisted of ten separate but related grants for such things as health surveys, T.B. control, mental health, venereal disease control, cancer control, facilities for crippled children, and hospital construction. Only a few of these were shared-cost programs. This is true of the hospital construction grant which was quantitatively the most important of the ten grants. It was designed to reduce what was felt to be an acute shortage of hospital beds, and was well received by the provinces. It did in fact lead to a rapid expansion in hospital bed capacity throughout Canada.

The success of the hospital insurance program in Saskatchewan together with the analysis of the Canada Sickness Survey provided the justification for a public program providing universal hospital insurance coverage (Manga, 1978). It was politically popular with the electorate and hospitals, many of which were in dire financial straits in the early fifties. Quebec and Ontario were the main opponents of the proposed scheme mainly on constitutional grounds. The Maritimes provinces were generally supportive of the federal proposals.

The major principles of the Hospital Insurance and Diagnostic Services Act (1957) are well-known and do not need elaboration. They include universal coverage, accessibility in a manner that did not impede or

preclude whether by fees or other means, 'reasonable access' to insured services, comprehensiveness of services and portability of benefits.

The primary objectives of HIDSA was the promotion of interpersonal and interprovincial equity. The Act was meant to be redistributive in the sense of reducing interpersonal disparities in access to medically necessary hospital services and differences in the interprovincial levels of services. The Act was also, of course, meant to assure the financial stability of the hospital sector. The financial arrangements were embodied in a formula by which the federal share of any province's insured and shareable hospital costs were calculated to be 25 per cent of the national per capita costs plus 25 per cent of the provincial per capita costs, all multiplied by the number of insured persons for the province. Specifically excluded from coverage were T.B. hospitals and sanatoria, institutions for the mentally ill, and custodial care institutions such as nursing homes. User fees were not cost-shareable, and the imposition of such fees had to be approved by the federal Minister of Health and Welfare.

The next major development in Canadian health policy occurred in 1962 when Saskatchewan with an NDP government extended its own public insurance plan to cover physicians' services. The initiative was highly controversial and the political turbulence it created included a general strike by doctors (Badgley and Wolfe, 1967; Tollefson, 1963). The Federal government responded by setting up a Royal Commission or Health Services, chaired by Emmett Hall. It recommended among other things a national program to cover physician services.

In 1965, under the Health Resources Fund Act, the federal government offered matching grants to the provinces for the planning, acquisition, construction, renovation and equipping of facilities for the training of health personnel. It was designed to increase the supply of doctors and other health professionals and thus played an analogous role to the Medical Care Act of 1966 as the hospital construction grants of 1948 did for the hospital care program (HIDSA). At the same time, the federal government declared its intention of introducing a national shared-cost program to cover medically necessary physician services.

In 1966, the federal government introduced another shared-cost program, the Canada Assistance Plan. It will be discussed more fully in a later section devoted to this shared-cost program. Here, it should be noted that the plan allowed Ottawa to cost-share, on a 50-50 basis, a wide range of health services, including drugs, dental services, prosthetic appliances, certain levels of nursing home care, etc. to "needy persons".

At this juncture, it is interesting to note that the federal government enacted in 1965, the Established Program (Interim Arrangements) Act, which permitted provinces to opt-out of a number of 'established' shared-cost programs, including hospital insurance. The provinces were offered a specified number of personal income tax points, equalized to the level of the two highest-yield provinces, in lieu of the cash transfers. The yield was then adjusted to make the provincial payments equal to what the province would have been entitled to under the original program terms. It was for all intents and purposes only a 'symbolic' offer. Only Quebec opted-out of the federal-provincial hospital insurance program.

The Medical Care Act received royal assent in 1966 but because of concerns about inflation and rising health care costs its implementation was delayed until July, 1968. Under this Act the federal government was to pay each participating province 50 per cent of the national per capita insured medical costs multiplied by a province's insured population. Unlike HIDSA, the administration of the Medical Care Act was almost exclusively provincial. The Act made reference to reasonable incomes for physicians and the freedom of doctors to choose their preferred method of remuneration.

The Medical Care Act stipulated similar principles as HIDSA. It required universality, reasonable accessibility under uniform terms and conditions, comprehensiveness coverage of medically necessary services, portability of benefits and public administration of the plan.

Patient fees, if any, had to be small enough so as not to deter accessibility to insured services. All plans had to be managed by public, non-profit bodies. The Act was popular with the public and the provinces. Ontario and Alberta objected to the Act for its 'socialistic' implications and Quebec (predictably) objected on jurisdictional grounds.

The federal government made two further offers to provinces to opt-out of hospital insurance, the Canada Assistance Plan and the National Health grants, once in 1966 and again in 1973. These were rejected by all the provinces because it was quite clear that the opting-out arrangements were designed to reduce the federal government's financial commitment (Carter, 1971, Brown, 1984). By the late 1960's the federal government was seriously considering altering the shared-cost programs it had introduced. Its main concern was the soring cost of these shared-cost programs. To show its

determination to control costs and change the financial design of these programs, it unilaterally imposed a limit of a 15 per cent annual growth rate in the federal grant for post-secondary education (Strick, 1977, 130). In 1975, alarmed by inordinately high increases in health care costs, it announced similar constraints on the percent increase for payments under Medicare of 14.5 per cent for 1976-77, 12 per cent for 1977-78 and 8 per cent in 1978-79. It also gave a mandatory notice that the hospital insurance agreements would be terminated at the earliest possible date, that is, 1980 (Taylor, 1987). All of these announcements were meant to convey the seriousness of Ottawa's wish to replace the shared-cost arrangements.

The major complaints and shortcomings of the shared-cost programs as far as the federal government was concerned were (a) the programs were open-ended, that is, the cost to the federal government did not have a limit it could specify but rather was determined by spending decisions of the provinces; (b) there was uncertainty and unpredictability in the federal government's cost from year to year. In justifying an end to certain shared-cost programs, Prime Minister Trudeau offered these two and several other reasons at a 1976 Conference of Federal and Provincial First Ministers. To continue the list of adverse effects of these programs Trudeau offered the following: (c) several provinces had long complained that federal shared-cost programs distort their own priorities in favour of federally supported programs and services, that is, that there were inter-sectoral misallocation of resources, (d) federal cost-sharing made it less necessary to keep costs down and offered less incentive to improve the

efficiency of the health care services that were cost-shared, and that resources were poorly allocated intra-sectorally by favouring hospital and later medical services over lower-cost institutional care, nursing home care, home care and community-based programs (e) cost-escalation puts pressure on the federal government to impose limits on its transfers which in turn causes uncertainty for the provinces as to the quantum of federal funds they can expect from Ottawa, (f) great disparities had arisen in federal per capita transfers to the provinces, most notably in the field of post-secondary education where some provinces were able to or chose to benefit more than others from the shared-cost program, (g) similarly, while the federal share of hospital costs in the poorer provinces was greater than for the richer provinces, the per capita transfer to the wealthier provinces were in fact greater than for the poorer provinces; by contrast, the cost-sharing formula under Medical Care Act produced a more equitable interprovincial transfer of federal funds, (h) there were auditing and administrative difficulties, and complaints about delays in settlements and exchange of information.

While many provinces, and especially the Atlantic provinces and Manitoba and Saskatchewan under NDP governments had traditionally been supporters of the shared-cost funding arrangements - though with some modifications, especially with regards to incorporating into the formula for cost-sharing, a factor reflecting differences in need and fiscal capacity to finance the services in question - they ascertained that the federal government was irrevocably determined to terminate the then existing cost-sharing arrangements in favour of a closed-ended and block-

funding grant or transfer mechanism. They were, however, not as keen on the proposed block-funded grant, later to be known as EPF, as were Quebec, Ontario and Alberta (Brown, 1984, Weller and Manga, 1982).

In fact, six provinces, that is the four Atlantic Provinces, Saskatchewan and British Columbia were in favour of continuing the cost-sharing arrangements or at least not abandoning them for EPF (Carter, 1977, 543-44). British Columbia had regarded EPF as a means by which the federal government could abandon its commitment to increased expenditures which it had promoted for two decades. The Atlantic provinces, as they had done consistently in the past, emphasized their interest in a strong federal role in recognition of the importance of the shared-cost programs in the development of their social programs.

HIDSA and the Medical Care Act had, of course, produced significant positive effects. First, it provided universal coverage for all, rich and poor alike, and eliminated the financial risk of medical and hospital costs. Second, they reduced the interpersonal inequities in excess to medically necessary services (Manga et al, 1984; Broyles et al, 1983; Manga, 1978; Barer et al, 1981). Third, both programs also reduced the inequalities in the interprovincial levels of care (Taylor, 1987; Weller and Manga, 1982).

The timing and spacing of HIDSA (1958) the Medical Care Act (1968) and the Established Program Financing (EPF) Act (1977) suggests perhaps another reason for ending the cost-sharing arrangements. It could be argued that different types of grants can be viewed as appropriate at different phases in the evolution and maturation of the health care programs. That is, cost-

sharing mechanisms make better sense at the developmental or early phases of the national programs, to be replaced with looser EPF-type block funding grants when these programs become mature and established.

Established Programs Financing (EPF)

With the introduction of the Fiscal Arrangements and Established Programs Financing Act in April 1, 1977 (Bill C-37) the hospital insurance, medical insurance and post-secondary education programs came under what was termed "Established Programs Financing". Under the new EPF arrangements, cost-sharing was replaced by block-funding though the provinces were to continue to adhere to the principles and objectives previously established for these three programs. It was in this very important sense still a conditional transfer. This Act was a major break with the fiscal federalism tradition up to that time and thus constitutes the third stage in the evolution of fiscal federalism and health care programs in Canada. According to one noted scholar of fiscal federalism "the entire philosophical and economic underpinning of Canadian federalism was at issue in Bill C-37" (Couchene, 1979, 1). It constituted, in fact, the most significant step in the decentralization of power in the Canadian federation in the post-war period.

The financial details of EPF are a lot more complex than the cost-sharing formulae it replaced. The essential details are, however, the following. First, each province was to receive a "basic cash" transfer designed to replace 50 per cent of the federal contribution to the three programs under the old cost-sharing arrangements. This was to be determined

by taking half of the national federal per capita payments for the three programs in 1975-76, escalated year by year by a three year moving average in the per capita current dollar GNP. It is this "basic cash" component of the new fiscal arrangements to which the previously agreed principles of universality, comprehensiveness, accessibility, portability and public administration were attached. The federal government could enforce these principles by withholding all of the cash transfers for a particular established program from a province for violating these principles (Weller and Manga, 1982, 235). However, the more detailed conditions and reporting requirements, especially under HIDSA (1958) were dropped. Second, each province also received "tax room" consisting of federal reductions equal to 1 per cent of the corporate taxable income and 13.5 per cent of the federal basic personal income tax. The tax transfer were equalized to the national average. It should be noted that <u>not</u> all of this transfer of tax points represents <u>new</u> tax room for the provinces. Part of the provinces' earlier compensation for post-secondary education had been an abatement of 4.357 equalized personal income tax points and one equalized corporate income tax point. Thus the net tax room transfer under EPF was 9.143 personal income tax points. Third, there was to be a special cash payment equivalent to one point of equalized personal income tax that was part of the bargain reached over the controversial "revenue guarantee". The Act (Bill C-37) did not attach this sum to the established programs themselves. Fourth, Ottawa gave assurances that no province would receive less than double the equal per capita cash transfer. In Bill C-37 this is referred to as the "transitional adjustment payments" (TAP) reflecting an assumption that TAP would soon

disappear (Ottawa assumed that the tax transfer would grow at a rate in excess of the equal per capita cash transfer). These transitional payments are especially important to provinces (such as the Atlantic provinces) where the transfers of tax room have a low value relative to the national average. Fifth, there were supplementary levelling payments or debits designed to bring about greater equality in per capita basic cash payments to the provinces over a period of years. Payments to high-per-capita-transfer provinces were to be levelled down over a period of 5 years and those to the low-per-capita-transfer provinces were to be levelled up over 3 years. Prior to EPF (1977) there were substantial differences in the per capita federal transfers to the provinces, especially for post-secondary education. These levelling payments were specially important to the Atlantic Provinces. Sixth and finally, Bill C-37 also introduced the Extended Health Care Grant of $20 per capita, indexed to the 3 year moving average rate of growth of nominal per capita GNP, to cover the costs of converted mental hospitals, nursing home intermediate care, adult residential care, home care, and ambulatory health care. This grant is not new. In fact, the Extended Health Care grant was a substitute (and thus offset) for payments under the Canada Assistance Plan (CAP) as will be discussed more fully later in the report. The EHC Program in fact recognized the provinces' complaints about the inefficiency of some health services being shareable and others not. Also, the inclusion of these services under EPF and their removal from CAP, in effect, removed the incentive (invitation) to provinces to shift services from the new block-funded health programs to the Canada Assistance Plan, where cost-sharing

was still in effect. In fact, CAP was the only major cost-sharing program left out of Bill C-37.

Interestingly, Prince Edward Island and Newfoundland actually lost in absolute terms from this change from CAP to EPF, as did the Yukon. Ontario and the Western Provinces gained much more than the Atlantic Provinces, largely because the covered services were relatively well developed in the east and a higher proportion of those using the services were "in need" in the east than in the west (Breau Report, 1981, 117). In short, the eastern provinces did not receive much of a 'bonus' from the extended health care provisions of EPF as did Ontario and the western provinces. Nova Scotia gained from this change, however.

EPF: Effects, Controversy and Change

The effects of EPF have not been carefully assessed by empirical evidence and analysis. Some of the effects are rather conjectual as will be explained soon. The first few years of EPF saw major controversies and among the most acrimonious debates ever between the federal and provincial governments. Within a year or two of the introduction of EPF, the federal government began to plan changes to it. Indeed, some of the fiscal relationships of Bill C-37 concerning EPF was changed in 1982, 1983 and again in 1986.

It is important to distinguish the short term from the long term effects of EPF. More precisely, the effects of EPF in the first 5 year since its inception did not necessarily reflect its steady-state or longer term effect. This is a point often overlooked in many analyses of EPF,

especially those that were done early after the inception of EPF. This can be seen from the basic data presented in the twelve tables contained in the appendix to this section on provincial government health expenditures and the federal Government's contributions towards them.

Two of the purported advantages to the federal government of a close-ended block funding grant tied to growth in the GNP rather than health care costs were (a) escalation of the cash transfer would be more predictable and (b) the costs to the federal government were expected to be lower than that under the cost-sharing arrangements. For the first five years (1977 to 1982) neither expectation was met. EPF increased slightly the federal contributions to the three programs compared to what they would have been had the pre-1977 cost-sharing arrangements been continued. This result was not totally unexpected. However, as can be seen in Table 2.6A EPF did lead to a fall in the federal share of the costs of medicare since 1979-80 onwards, from 54.1 percent to 46.4 presently.

This is also summarily shown in Table 2.1. For Nova Scotia, the federal share for medicare fell from 57.9 percent in 1979-80 to 48.7 percent in 1988-89. The federal share for extended health care services had also fallen over this period. The federal share of all health care expenditures in Nova Scotia fell from 51.2 percent in 1979-80 to 41.8 percent in 1988-89. The broad picture is much the same for Newfoundland, Prince Edward Island, New Brunswick and Saskatchewan. However, it can be seen that the relative decline in the federal share for the different provinces is not the same. This is due to differences in the increase in health care costs between the provinces. Comparing the growth in medicare

Table 2.1

Federal Government share of Provinces Health Care Expenditure

	Medicare[1] Expenditure		Extended Care Services		All Health Care Expenditure[2]	
	Peak	1988-89	Peak	1988-89	Peak	1988-89
Newfoundland	58.0 (1978-79)	52.8	57.3 (1977-78)	37.1	48.8 (1978-79)	43.5
P.E. Island	63.8 (1979-80	58.8	73.1 (1976-77)	34.3	50.6 (1979-80)	45.2
Nova Scotia	57.9 (1979-80)	48.7	72.1 (1979-80)	66.0	51.2 (1979-80)	41.8
New Brunswick	65.8 (1979-80)	53.7	61.5 (1977-78)	39.6	52.3 (1979-80)	42.1
Saskatchewan	59.4 (1979-80)	58.1	98.2 (1977-78)	24.8	47.2 (1978-79)	40.9
Canada	54.1 (1979-80)	46.4	40.6 (1979-80)	32.8	44.6 (1979-80)	37.4

1 Medicare includes insured hospital and physician services.

2 All health care expenditure is more than the sum of medicare and extended health care services.

Source: Health Information Division, Health and Welfare Canada, December 1988. Derived from the tables appended to this section.

expenditure for the ten year period 1978-79 to 1988-89 for Newfoundland, Prince Edward Island, Nova Scotia, New Brunswick and Saskatchewan shows that the percentage increase to be 242, 252, 285, 270 and 240 respectively. The drop in the federal share of medicare expenditures is correspondingly greatest for Nova Scotia, followed by the New Brunswick and Prince Edward Island. Much the same pattern and explanation can be made to account for the decline in the federal share of all health care expenditure which was the steepest for New Brunswick followed very closely by Nova Scotia.

EPF did make federal contributions a lot more predictable after 1982 than before. Ottawa's projections for its contributions for the basic cash, revenue guarantee, and transitional adjustment payments turned out to be incorrect. The yield of the tax points transferred to the provinces did not grow as rapidly as expected because of a recession in the late seventies and the impact of the indexation of the personal income tax. In fact, in 1977-78 all provinces were to receive these transitional adjustment payments. Another reason for the increase in the federal share should be carefully noted. The per capita value of EPF transfers grows annually by roughly the average rate of growth over the preceding four years. Over the long run the average growth rate of the EPF transfers should be equal to the growth of the GNP. However, because the growth rate of nominal GNP was substantially greater during the years preceding the introduction of EPF (1977), than in the years since, the application of the lagged escalator led to a relatively rapid increase in EPF transfer. This can be readily seen in Table 2.2 which shows the escalators for health services covered under the Established Program Financing Act and the per capita value of the

Table 2.2

The Value of the EPF Escalator and per capita transfer for medicare[1] and extendesd healthcare services

Year	Escalator (percent)	medicare ($ per capita)	Federal transfer for EHCS ($ per capita)
1975-76	-	144.34	-
1976-77	14.85	165.76	-
1977-78	14.04	189.04	20.00
1978-79	11.00	209.84	22.20
1979-80	10.41	231.68	24.51
1980-81	10.24	255.39	27.02
1981-82	11.08	283.70	30.01
1982-83	12.21	318.34	33.68
1983-84	9.12	347.39	36.75
1984-85	8.17	375.75	39.75
1985-86	6.84	401.44	42.47
1986-87[2]	5.84	424.88	44.95
1987-88	4.72	444.92	47.07
1988-89	4.41	464.55	49.15

[1] Medicare means all insured hospital and physician services covered by EPF.

[2] The escalator for the fiscal years 1986-87 and onwards was reduced by 2 percentage points as a result of Bill C-96.

Source: Established Programs Financing 1988-89, Federal-Provincial Relations Division, Department of Finance, Ottawa.

federal transfer for medicare and extended health care services nationally. The two largest increase in the per capita transfers of more than 14 percent occurred in the first two years of EPF. The first seven years of EPF saw double digit increases in the per capita transfers. Since 1982-83,the value of the escalator has been falling continuously and in the last two years (1987-88 and 1988-89) was only 4.7 and 4.4 respectively. As shown in the footnote 2 of Table 2.2, the value of the escalator for the fiscal years 1986-87 onwards is 2 (two) percentage points lower than the initial EPF Act of 1977 would have allowed.

EPF transfers as a percent of GNP were 2.82, 2.85, 2.89, 2.99, 3.01, 2.98 for the fiscal years 1975-76 to 1980-81 inclusive. Indeed in 1978, the Federal Minister of Finance served notice to the provinces that he wanted to negotiate a new formula that would escalate at a slower rate (Courchene, 23). The provinces, as was their right under the EPF Act for the first 5 years, refused to entertain a renegotiation. The federal government responded to this by postponing the proposed Social Services Act which was designed to provide additional money to the provinces through a block-funded equal per capita grant for select social services covered by CAP. This matter will be discussed further in the section on the Canada Assistance Plan.

EPF was also meant to provide a greater degree of equity in that under EPF the per capita payments to provinces were to be equal. (It should be recalled that under HIDSA, wealthier provinces which had higher per capita hospital costs received higher per capita transfers from the federal government.) This goal was expected to be reached by 1980. However, the

goal was not fully attained until 1982-83, and that in fact was achieved by modifying the EPF arrangements in 1982, as will be explained soon. However, the EPF Act did have an equalizing effect compared to the shared cost programs (Economic Council of Canada, 1982, 61). This can be seen in both tables 2.3 and 2.4. They present the per capita federal transfers, which include the basic cash, tax points, transitional and levelling adjustment components for the established programs for the six years 1977-78 to 1982-83 inclusive. Looking at Table 2.3 it is apparent that all of the Atlantic provinces were receiving a per capita transfer for hospital and physician services that was below the national average for the fiscal years 1977-78 and 1978-79. This is also true for post-secondary education as will be shown later, and therefore for the per capita transfer for all programs coverd by EPF (see Table 2.4). This inequality in the per capita transfers for both medicare and post-secondary education is markedly reduced by 1979-80, when only Alberta, British Columbia and the Yukon were receiving more than the rest of the provinces. They reduced level of inequality remained for two more years and was completely eliminated by 1982-83.

Did EPF lead to a better or more efficient allocation of resources within the health sector and between health and other priority areas such as housing, education and so on. There is no clear evidence and certainly very few studies that show clearly whether EPF succeeded or failed in these respects. Some commentators believe that EPF was successful in both types of efficiency gains (Courchene, 19, Economic Council of Canada, 1982) but do not provide any specific supportive evidence for their conclusions. Others suggest that EPF was even by 1980-81 marginally successful in

Table 2.3

The Per Capita Transfer[1] for Medicare[2] under EPF

Province	1977-78	1978-79	1979-80	1980-81	1981-82	1982-83
Nfld.	169.29	198.74	230.81	255.71	284.02	352.01
P.E.I.	162.42	194.95	230.81	255.71	284.02	352.01
N.S.	176.35	202.65	230.81	255.71	284.02	352.01
N.B.	170.09	199.20	230.81	255.71	284.02	352.01
Que.	188.14	208.85	230.81	255.71	284.02	352.01
Ont.	180.97	205.26	230.81	255.71	284.02	352.01
Man.	181.09	205.27	230.81	255.71	284.02	352.01
Sask.	174.26	201.51	230.81	255.71	284.02	352.01
Alta.	183.43	211.35	243.43	281.07	318.40	352.01
B.C.	170.98	199.76	230.81	259.30	284.97	352.01
N.W.T.	182.61	206.15	230.81	255.71	284.02	352.01
Yukon	193.03	221.16	249.10	283.28	308.81	352.01
Can.	180.92	205.52	231.92	258.39	287.32	352.01

1 Includes tax and basic cash transfers, transitional adjustment, levelling adjustment and the Quebec abatement.

2 Hospital care and physician services only; it does not include extended health care services.

Source: Annual publication on Established Programs Financing by the Federal-Provincial Relations Division, Department of Finance.

Table 2.4

The Per Capita EPF Tax and Cash Transfer[1] for Hospital and Physician Services, extended health care services and post-secondary education

Province	1977-78	1978-79	1979-80	1980-81	1981-82	1982-83
Nfld.	269.41	314.97	364.50	403.78	448.49	502.68
P.E.I.	259.29	309.39	364.50	403.78	448.49	502.68
N.S.	279.81	320.73	364.50	403.78	448.49	502.68
N.B.	270.59	315.64	364.50	403.78	448.49	502.68
Que.	297.18	329.85	364.50	403.78	448.49	502.68
Ont.	286.62	324.58	364.50	403.78	448.49	502.68
Man.	286.79	324.58	364.50	403.78	448.49	502.68
Sask.	276.74	319.05	364.50	403.78	448.49	502.68
Alta.	290.24	333.53	383.09	441.14	499.13	502.68
B.C.	271.90	316.47	364.50	409.07	449.89	502.68
N.W.T.	289.03	325.85	364.50	403.78	448.49	502.68
Yukon	304.41	348.02	391.52	444.35	485.03	502.68
Can.	286.54	324.94	366.13	407.73	453.34	502.68

[1] Includes tax and basic cash transfers, transitional adjustment payments, levelling adjustment payment and the Quebec abatement.

Source: Annual reports on Established Programs Financing by the Federal-Provincial Relations Division, Department of Finance.

improving the allocation of resources within the health care sector (Weller and Manga, 1982). Yet others declare that EPF has failed to improve efficiency or health care cost containment (Brown, 1984). The real difficulty we face in addressing this issue is estimating what the costs and resource allocation configuration would have been had we continued under the old shared-cost arrangements. This is by no means a straightforward matter. Hence, the variety of opinions and educated guesses.

Earlier empirical studies on inter-governmental grants in Canada by Carter (1971), Hardy (1976) and Slack (1978) suggests that both HIDSA and the Medical Care Act may have distorted provincial resources allocation decision between health and other public services and within the health sector. A more recent analyses of EPF concluded that there was "a significant decline in real spending on hospital care and post-secondary education due to the move from cost-sharing to block-tending. These results cost doubt on the prevailing view that this regime change was a fiscal non-event" (Coyte and Landon, 1988, 18). The impact of EPF "with respect to medical care generally indicate little real effect" (Coyte and Landon, 1988, 17). Ontario was found to have reduced in real spending for hospital and post-secondary education the most.

Table 2.5 also suggests that EPF did have a positive effect in reallocating resources within the health care sector. Specifically, it illustrates that medicare expenditures constitutes a lower percentage of the aggregate health care expenditures in 1988-89 than in 1975-76 for almost all jurisdictions. Interestingly, it also shows that Nova Scotia

Table 2.5

Expenditures on Hospital and Medical Services as a Proportion of Total Health Care Expenditures

Province	1975-76[1]	1988-89
Newfoundland	69.9	71.2
Prince Edward Island	70.6	66.4
Nova Scotia	80.9	75.6
New Brunswick	76.4	68.9
Quebec	75.7	70.8
Ontario	76.8	73.4
Manitoba	75.3	68.3
Saskatchewan	75.7	62.0
Alberta	76.2	68.6
British Columbia	78.1	69.7
Yukon	60.1	65.3
North West Territories	74.8	69.6
Canada	76.4	71.1

[1] The fiscal year 1975-76 is the base year for calculation purposes under EPF.

Source: Health Information Division, Health and Welfare Canada, December 1988.

allocates much more of its health care dollars to medicare than does any other province. It seems that it was much less successful in reducing the share of medicare expenditure in relation to total health care expenditure than most other provinces since 1975-76. EPF also made federal spending power more - though in the view of some provinces and constitutional experts, not totally - respectful of the Canadian Constitution. Shared-cost programs were often criticized by provincial governments and by task forces and royal commissions (Rowell-Sirois, 19) as undermining provincial autonomy. They were viewed as a constitutional subterfuge. Block funding constitute much less interference in provincial fiscal decisions than cost-sharing arrangements. However, even under EPF, provinces were legislatively and operationally required to meet federally stipulated principles and objectives. The Canada Health Act was to be a forceful reminder of just this point.

The effects of EPF discussed above did not receive much public attention nor were they regarded as contentious issues. This contrasts markedly with the complex and seemingly related issues of the alleged underfunding of health care programs, the so-called 'medicare crisis' and the alleged diversion or misappropriation of EPF transfers.

Only a year after the introduction of EPF, the federal government felt that the financial arrangements were too generous for the provinces and proposed to reduce the rate of escalation of the cash payments (Courchene, 1988, 71). The provinces, naturally refused to renegotiate EPF. The federal "share" of health care expenditure did in fact increase in the 1977-78, 1978-79 and 1979-80 compared to the pre-EPF years.

The dollar value of EPF was a subject of heated argument over the veracity and meaning of figures generated by both levels of government. Provinces argued that part of EPF was essentially a replacement of previous revenue guarantees. Most of the extended health care component of EPF is a substitute for services previously covered under the Canada Assistance Plan. They also pointed out that some components of EPF, specially the transitional adjustment payments and levelling payments were to be short-lived and in the course of a few years would not impose any burdens on the federal government. Further, they pointed out that non-medicare health care costs were increasing rapidly as was expected once the shared-cost grants for hospital and physician services were replaced by a block fund, and that health care expenditure as a percent of GNP which had been steady in the latter part of the seventies, would rise, a prediction that turned out to be correct. The provinces argued that the GNP escalator specified in the EPF Act will be inadequate in future in light of new program initiatives and the implications of medical technology and demographic changes on health care costs. As was mentioned earlier, part of the higher than expected increase in federal cash contributions was due to the lagged nature of the GNP escalator and to lower than forecasted personal and corporate income tax elasticity.

The medicare crisis largely consisted of rapid increases in the number of doctors opting-out and extrabilling (Manga, 1983); increasing militancy among nurses and other hospital unions about provincial cost-containing decisions (Taylor, 1987); concerns by the general public that national standards were being eroded; the introduction hospital user fees or the

raising of existing ones; the beginning of charges by several health care professional groups, notably among whom were the physicians, about the underfunding of health services; and dramatic charges by the Federal Minister of Health and Welfare that as a result of EPF, provinces were diverting federal transfers for health programs to non-health related purposes. There were threats of withholding federal cash transfers under EPF from provinces that were violating the fundamental principles of Medicare. Is EPF implicated in the thus described 'medicare crisis'?

This is a difficult question to resolve in any definitive way. A simple "yes" or "no" conclusion is certainly not warranted, given the many alleged effects (of EPF) that are included in the concept of the 'medicare crisis'. For example, it is true that under cost-sharing, hospital user fees net the provincial government less revenue than under the block-funded EPF. The accusation that EPF is thus responsible for the introduction of user fees at least sounds consistent and logical, though it can also be argued that other factors (e.g. inflation, pressure of costs) might equally well explain the phenomenon. Physician fees were being squeezed before EPF was implemented, and the explosion of extrabilling in some provinces is a function of both years of low fee schedule increases and the concurrent end of the anti-inflation program. Budget squeezes, too, predate EPF. As for charges that provinces were 'diverting', 'misappropriating', 'distorting' and otherwise 'abusing' federal EPF supported health funds the following discussion suggests that the federal claims were without foundation.

In July 1979, with a change in government the new Minister of Health and Welfare proposed that a Special Commissioner be appointed to conduct an

inquiry, a suggestion that the provincial ministers (except Quebec) accepted. The resulting Hall Review (1981) provided the justification for the Canada Health Act of 1984. One of the major questions that the Review was asked to address was whether or not the provinces were diverting federal EPF funds for non-health purposes? The words of Professor Taylor who conducted the analyses on this issue sum up well the conclusion of the Hall Review on this matter. He writes that he "relied on expert staff in Health and Welfare Canada to analyze pre-EPF and post-EPF health expenditures. That group completed a monumental task of examining provincial public accounts, and all their data were submitted to provincial Health and Treasury departments for verification... (This was) followed up with interviews with federal and provincial finance and health officials. The results were indisputable: provinces were not diverting federal health "contributions" to non-health proposes" (Taylor, 1987, 89-90).

It is interesting to note the provincial governments' views on EPF in their submissions to the Hall Review. Formal briefs were submitted by the governments of B.C., Saskatchewan, Manitoba, Ontario, New Brunswick, and Nova Scotia. All approved of the increased flexibility afforded by EPF. They also claimed that federal figures about the amounts transferred under EPF were overstated, and considered allocation by program areas arbitrary. Several including Nova Scotia called for additional funding for select items (for example, dental care for children, pharmacare for those over 65 years of age) on a cost-shared basis of 50 per cent of the national per capita cost. Only Saskatchewan argued that EPF should be jettisoned and that a cost-sharing mechanism be re-established for medicare.

A Parliamentary Task Force on Federal-Provincial Fiscal Arrangements similarly absolved the provinces of the charge of diverting federal funds. It recommended against reductions in federal support for the established programs in opposition to the government's announced intentions. It also recommended stricter conditions, and monitoring and enforcement mechanisms to ensure compliance with national program conditions. The Hall Review had similarly proposed revisions to the principles of Medicare. More specifically, both the Hall Review and the Task Force called for revised legislation that would either ban or penalize extrabilling by physicians and the imposition of hospital user fees on insured medically necessary services covered by Medicare.

It should be noted that there was, throughout the period referred to as the 'medicare crisis', strong political pressure, internally within the government, and externally from the body politic and from a myriad of pressure groups, pushing the federal government to retreat from the direction suggested by the EPF arrangements and reclaim and to reassert Ottawa's role in policy direction. "Indeed, one interpretation to explain (the) creation of the Task Force is that it would be a device to mobilize legislative and group support behind a reassertion of the federal presence in these fields" (Simeon, 1982, 43).

The Task Force's most important themes are those of national standards and federal presence on the one hand and accountability and visibility on the other. It argues against further transfer of tax room on the grounds that the established programs are not of concern solely to provincial governments but are program areas involving significant national interests

in which some federal presence is desirable" (Breau Report, 1981, 40). It claimed that for Medicare "there is an overriding national interest" in the design of the programs. With reference to accountability and visibility it recommended a return to specific earmarking of the transfer under EPF to individual programs, an annual report to Parliament on the operation of the health care program, and effective mechanisms for Ottawa to monitor provincial performance. It might be noted that virtually all groups who addressed the Task Force called for earmarking of federal funds for specific programs and most argued for a return to cost-sharing.

The Canada Health Act

The Canada Health Act was unanimously passed by the House of Commons in 1984. The Act amalgamates hospital and physician services in one legislation in contrast to the two separate Acts that had prevailed until then. Its essential purposes are well-known and widely discussed. It allows the federal government to reduce its cash contributions under EPF to those province who permit extrabilling by physicians or impose hospital user fees or inappropriately levy chronic care copayments. The sums thus withhold are to be kept in a trust fund for 3 years. The province can recoup the withheld sums (penalties) without interest if it corrects the default for which it was penalized. It also tightens up the principles of universality, portability and accessibility. It makes reference to binding arbitration between doctors and provincial governments. It requires the provision of information for purposes of accountability and also calls for visibility for the federal government's contributions towards Medicare.

There is also scope for the federal government to withhold an unspecified amount of its cash transfers for violating other principles or conditions of the Act subsequent to negotiation between the two levels of government.

Did the Canada Health Act presage another era of tougher, heightened and more interventionist federal role in social policy or was it simply a corrective to the EPF Act of 1977 which was found wanting in certain respects, particularly its imprecise language and its unwieldy and politically improbable enforcement mechanisms? (The latter point refers to the fact that under EPF the federal government could withhold all of the cash transfer for hospital or physician services. The penalties are thus large and extreme and therefore politically hazardous). The post Canada Health Act history of fiscal federalism and especially the Meech Lake Accord suggest that the latter view is the correct one. In any case, the tougher reassertion of the principles of medicare and a heightened federal concern about them, constitutes the fourth phase in fiscal federalism and health policy in Canada. The Canada Health Act stopped or reversed some of the effects allegedly brought about by the Established Programs Financing Act of 1977.

The federal government had announced its intention to revise the terms and conditions under EPF in November 1981. About that time it also negotiated several change to the Fiscal Arrangement and Established Programs Financing Act of 1977. In the following discussion we focus on these changes pertinent to the programs covered by EPF, particularly health services.

Changes to the EPF Arrangements

In a budget paper entitled "Fiscal Arrangements in the Eighties- Proposals of the Government of Canada", the government proposed several changes to the (unconditional) equalization payments (to be presented and discussed in a later section on federal equalization payments) and proposed to terminate on April 1, 1982 compensation for the 1972 revenue guarantee program (that is, one percentage point of personal income tax and its equivalent in cash added to the Established Programs Financing Arrangements in 1977). It also proposed to change the EPF payments so that all provinces receive equal per capita contributions. There were several highly contentious and acrimonious discussions between the provinces and the federal government. Some modifications were offered by the federal government though it did not make any concessions about its desire to eliminate the payments associated with the revenue guarantee.

"In February 1982 the federal government declared that while negotiations would continue with respect to the clarification of national standards for health care (later embodied in the Canada Health Act) it was going to proceed unilaterally to amend the (EPF) act's financial formula" (Weller and Manga, 1982, 240). The resulting Bill C-97 focusses mainly on changes to the equalization payments. With respect to EPF per se, the bill requires that the federal contributions to all provinces should be equal in per capita terms. It should be recalled that under the previous arrangements, only the cash payments were to be equal in per capita terms. The Bill also eliminates the revenue guarantee and since it was integral part of the calculations for EPF transfers, its removal required a revision

to the method of calculating the federal cash payments. In essence, for 1982-83 and onwards (with no termination date) the total entitlements under EPF for hospital, physician services and post-secondary education programs are equal to the national average per capita total federal contribution in 1975-76 (not 50 per cent as before) multiplied by the provincial population and increased according to the GNP escalator specified in the EPF Act of 1977. From this aggregate the value of the 13.5 percentage points of personal income tax and 1 percentage point of corporate income tax is deducted from the provincial entitlement to determine the cash transfer. In so doing the transitional payments and the extra cash and abatements (levelling payments) of the 1977 arrangements are no longer necessary and therefore were eliminated. This manner of calculating federal cash payments under EPF, in effect, eliminated the fiscal dividend enjoyed by Alberta and British Columbia since the value of the tax room in these provinces was much greater than the basic cash contribution and they were receiving more than the escalated value of the 1975-76 federal contributions. It is estimated that these two provinces will receive $563 million less over the 1982-1987 period as a result of the change. Finally, the new arrangements (1982) are not subject to the lengthy notices of change, and negotiated agreement for change, that were contained in the original EPF legislation of 1977. As was mentioned earlier, it is in 1982 that the federal government attained the objective of transferring an equal per capita sum to the provinces for the established programs.

In 1983, under the fiscal restraint program known as "6 and 5", the federal government applied a lower growth rate to its contribution to the

post-secondary education program (the health programs were exempted) than the EPF Act would have allowed. There were also some technical changes in the calculations of the federal contributions as a result of this change. The next event in fiscal federalism concerning the established programs was the enactment of the Canada Health Act in 1984. This was discussed earlier in this section.

In 1986, the federal government, despite strong provincial antipathy passed Bill C-96 which reduced the growth in the federal contributions to the established program by 2 per cent per year. As can be seen from the attached table provided by the Department of Finance, Government of Canada, the reduction in the total EPF entitlement to the provinces due to Bill C-96 is almost $5.7 billion over 5 years. Nova Scotia itself would lose in term of the aggregate entitlement and hence reduced cash transfer of $198 million over five years. Losses for New Brunswick, Newfoundland, Prince Edward Island and Saskatchewan are also shown in the Table 2.6.

Table 2.6, of course, refers to all of the programs covered by EPF. Table 2.7 is derived from Table 2.6 as shown in the note at the bottom of the table. It shows that provinces can expect to receive about $4.06 billion less from Ottawa for health services covered by EPF, over the five year period 1986-87 to 1990-91. Table 2.8 also derived from Table 2.6 shows that the provinces can expect to receive an estimated $5.69 billion less from Ottawa for health and post-secondary education programs covered by EPF over the 5 year period.

Bill C-96 has obviously reduced the share of the federal government in health care and post-secondary education expenditure of the provinces. It

Table 2.6

Projected Growth of EPF Transfers 1986-87 to 1990-91 Under Bill C-96
(in millions of dollars)

	NFLD	PEI	NS	NB	QUE	ONT	MAN	SASK	ALTA	BC	NWT	YUKON	TOTAL
1986-87													
Total Entitlement	381	84	580	472	4,329	6,002	706	671	1,549	1,906	34	15	16,729
Tax Transfer	147	32	224	182	2,443	2,631	272	214	757	759	16	7	7,684
Cash Transfer	234	52	357	290	1,886	3,372	434	457	792	1,147	18	8	9,045
1987-88													
Total Entitlement	404	89	613	499	4,563	6,359	745	712	1,646	2,018	36	16	17,700
Tax Transfer	163	36	247	201	2,686	2,914	300	234	836	840	17	7	8,481
Cash Transfer	241	53	366	298	1,877	3,445	445	478	810	1,178	19	9	9,219
1988-89													
Total Entitlement	427	94	647	525	4,798	6,716	784	753	1,748	2,131	39	17	18,680
Tax Transfer	179	39	271	220	2,938	3,192	328	258	926	922	19	8	9,299
Cash Transfer	248	54	376	305	1,861	3,524	456	496	822	1,209	20	9	9,381
1989-90													
Total Entitlement	450	98	681	551	5,037	7,079	823	795	1,854	2,247	42	18	19,676
Tax Transfer	195	43	295	239	3,199	3,478	357	282	1,018	1,007	21	9	10,143
Cash Transfer	255	56	386	312	1,838	3,600	466	513	836	1,240	21	9	9,533
1990-91													
Total Entitlement	475	103	715	578	5,277	7,446	863	839	1,961	2,364	44	20	20,685
Tax Transfer	211	46	318	257	3,443	3,746	384	304	1,098	1,088	23	10	10,928
Cash Transfer	264	57	397	321	1,834	3,700	479	535	864	1,276	22	10	9,757
1986-87 to 1990-91													
Total Entitlement	2,136	468	3,237	2,626	24,005	33,602	3,921	3,769	8,757	10,666	195	87	93,470
Tax Transfer	894	196	1,355	1,099	14,709	15,961	1,641	1,291	4,634	4,617	96	41	46,535
Cash Transfer	1,242	272	1,882	1,527	9,296	17,641	2,280	2,479	4,123	6,049	99	45	46,935

PROJECTED GROWTH OF EPF TRANSFERS 1986-87 to 1990-91 UNDER EXISTING LEGISLATION
(IN MILLIONS OF DOLLARS)

	NFLD	PEI	NS	NB	QUE	ONT	MAN	SASK	ALTA	BC	NWT	YUKON	TOTAL
1986-87													
Total Entitlement	388	86	591	481	4,412	6,117	719	683	1,578	1,942	35	15	17,047
Tax Transfer	147	32	224	182	2,443	2,631	272	214	757	759	16	7	7,684
Cash Transfer	241	53	368	299	1,968	3,486	447	470	821	1,183	18	8	9,363
1987-88													
Total Entitlement	419	92	637	518	4,739	6,604	774	739	1,709	2,096	38	17	18,381
Tax Transfer	163	36	247	201	2,686	2,914	300	234	836	840	17	7	8,481
Cash Transfer	257	56	390	317	2,053	3,690	474	505	873	1,256	21	9	9,900
1988-89													
Total Entitlement	452	99	685	556	5,078	7,108	830	797	1,850	2,256	41	18	19,769
Tax Transfer	179	39	271	220	2,938	3,192	328	258	926	922	19	8	9,299
Cash Transfer	273	60	414	336	2,141	3,916	502	540	924	1,334	22	10	10,470
1989-90													
Total Entitlement	486	106	735	595	5,433	7,635	888	858	1,999	2,424	45	20	21,223
Tax Transfer	195	43	295	239	3,199	3,478	357	282	1,018	1,007	21	9	10,143
Cash Transfer	291	64	439	356	2,234	4,157	531	576	982	1,416	24	11	11,080
1990-91													
Total Entitlement	522	114	786	635	5,800	8,185	948	922	2,156	2,598	49	22	22,739
Tax Transfer	211	46	318	257	3,443	3,746	384	304	1,098	1,088	23	10	10,928
Cash Transfer	311	68	468	378	2,358	4,439	565	618	1,058	1,511	26	12	11,811

Table 2.7

Projected Growth of Health Portion* of EPF Transfers 1986-87 to 1990-91 Under Existing Legislation*, Under Bill C-96*, and Calculated Loss (millions of dollars)

	NF	PE	NS	NB	PQ	ON	MB	SK	AT	BC	NT	YK	Total
1986-87													
Total Transfers Current	277	61	421	343	3146	4361	513	487	1125	1385	25	11	12155
C-96 Total Transfers	272	60	414	337	3087	4279	503	478	1104	1359	24	11	11928
Loss	4.99	1.43	7.84	6.42	59.18	81.99	9.27	8.56	20.68	25.67	0.71	0.00	226.73
1987-88													
Total Transfers Current	299	66	454	369	3379	4709	552	527	1219	1494	27	12	13106
C-96 Total Transfers	288	63	437	356	3253	4534	531	508	1174	1439	26	11	12620
Loss	10.70	2.14	17.11	13.55	125.49	174.69	20.68	19.25	44.92	55.61	1.43	0.71	486.27
1988-89													
Total Transfers Current	322	71	488	396	3621	5068	592	568	1319	1609	29	13	14096
C-96 Total Transfers	304	67	461	374	3421	4789	559	537	1246	1519	28	12	13318
Loss	17.83	3.57	27.09	22.10	199.64	279.50	32.80	31.37	72.73	89.13	1.43	0.71	777.88
1989-90													
Total Transfers Current	347	76	524	424	3874	5444	633	612	1425	1728	32	14	15133
C-96 Total Transfers	321	70	486	393	3591	5047	587	567	1322	1602	30	13	14028
Loss	25.67	5.70	38.50	31.37	282.35	396.43	46.35	44.92	103.38	126.20	2.14	1.43	1104.44
1990-91													
Total Transfers Current	372	81	560	453	4135	5836	676	657	1537	1852	35	16	16211
C-96 Total Transfers	339	73	510	412	3763	5309	615	598	1398	1686	31	14	14748
Loss	33.51	7.84	50.62	40.64	372.90	526.91	60.61	59.18	139.03	166.84	3.56	1.43	1463.08
1986-87 to 1990-91													
Total Transfers Current	1616	354	2448	1986	18154	25418	2965	2851	6625	8068	148	66	70701
C-96 Total Transfers	1524	334	2307	1872	17115	23958	2796	2688	6244	7605	139	61	66643
Total Loss	92.69	20.68	141.17	114.08	1039.55	1459.51	169.69	163.28	380.74	463.45	9.27	4.28	4059.40

* Note - Calculated as .713 of total entitlement under EPF
Total Entitlement was given in the document
Amendments to the Federal-Provincial
Fiscal Arrangements Act (Bill C-96)
An Explanation, May 1986
Department of Finance, Canada

Department of Medical Economics
Canadian Medical Association
October 10, 1986

Table 2.8

Estimated Loss to the Provinces Due to Bill C-96 for Health and Post-Secondary Education Programs Covered by EPF from 1986-87 to 1990-91

Province	$ millions
Newfoundland	130
Prince Edward Island	29
Nova Scotia	198
New Brunswick	160
Quebec	1,458
Ontario	2,047
Manitoba	238
Saskatchewan	229
Alberta	534
British Columbia	650
North West Territories	13
Yukon	6
TOTAL	5,692

Source: Derived from Table 2.6

is thus a major source of complaint by the provinces about recent developments in fiscal federalism in Canada. The irony of passing Bill C-96 in 1986, just two years after the Canada Health Act, which signalled thefederal governments "commitment for renewal" (to use Justice Emmet Hall's word) is not lost on the provinces.

Veterans Affairs Canada and Long Term Health Care

There is at present a federal committee made up of representatives from the Treasury Board, Health and Welfare Canada and Veteran's Affairs Canada, looking into the payment for extended care services for veterans by VAC to Nova Scotia. The central issue that is being investigated is the concern on the part of both Health and Welfare Canada and Treasury Board that the VAC is paying more than is necessary for the health care it contracts for veterans in Nova Scotia and other maritime provinces.

Veterans Affairs Canada is responsible for providing health services for veterans throughout Canada. It does so by providing care in its four remaining institutions, and whenever necessary, purchasing provincially based services including acute and longterm hospital and institutional care; services of physicians, nurses, dentists, optometrists; drugs, ambulance services, prosthetics, special equipment; and a variety of other health services. The federal government also transfers money as payments for health care facilities it transferred to provinces, facilities which it once owned for providing care for the veterans. Tables 2.9 and 2.10 shows the amount of federal annual payments for services provided to veterans for the year 1986-87 (latest year for which such date is available). Table 2.11 shows the aggregate (not annual) federal payments to provinces for

Table 2.9

Payments for Care in Non-departmental Hospitals - 1986-87

Province	($000)
Newfoundland	3,443
Nova Scotia	13,008
Prince Edward Island	270
New Brunswick	9,675
Quebec	2,443
Ontario	28,803
Manitoba	9,037
Saskatchewan	1,824
Alberta	2,218
British Columbia	7,619
Total	78,340

Table 2.10

Payments for Care in Non-departmental Hospitals - 1986-87

Province	($000)
Newfoundland	3,643
Nova Scotia	4,105
Prince Edward Island	1,446
New Brunswick	2,915
Quebec	5,830
Ontario	22,119
Manitoba	2,938
Saskatchewan	2,553
Alberta	2,596
British Columbia	9,130
Total	57,275

Includes the services of doctors, nurses, dentists and optometrists, and payments for drugs, ambulance, prosthetics, special equipment and other services.

Source: Federal-Provincial Relations Office (1988) Federal-Provincial Programs and Activities: A Descriptive Inventory, Ottawa.

Table 2.11

Original Agreed Payments for Health Care Facilities Transferred to Provinces (includes indexing)

Province	*Facilities Name*	*Active Treatment Beds*	*Long Term Care Beds*	*Date Effective*	*Grant/ Contribution ($000)*
Newfoundland	Veterans Pavilion, General Hospital, St. John's	25	59	May 12, 1978	1,000
Nova Scotia	Camp Hill Hospital, Halifax	50	200	May 29, 1978	36,760
New Brunswick	Lancaster Hospital, Saint John	20	180	Nov. 15, 1972	6,000
Quebec	Hospital Sainte-Foy, Quebec	54	96	Sept. 1, 1968	4,900
	Queen Mary Veterans Hospital, Montreal (now known as Centre hospitalier Côte-des-Neiges)	55	—	Feb. 20, 1978	14,573
Ontario	Sunnybrook Hospital (University of Toronto), Toronto	630	570	Oct. 1, 1966	12,000
	Westminster Hospital, London	115	727	Oct. 3, 1977	18,000
Manitoba	Deer Lodge Hospital, Winnipeg	50	155	Apr. 1, 1983	41,800
Saskatchewan	Veterans Pavilion, Regina General Hospital, Regina	50	—	July 11, 1966	—
	Wascana Centre*	—	66	Feb. 6, 1956	300
Alberta	Edmonton Veterans Home (University of Alberta), Edmonton	—	146	Dec. 31, 1979	500
	Colonel Belcher Hospital, Calgary	30	155	Apr. 1, 1980	6,646
British Columbia	Shaughnessy Hospital, Vancouver	270	600	July 29, 1974	7,710
	Victoria Veterans Hospital (Royal Jubilee Hospital), Victoria	60	110	Aug. 26, 1974	3,725
Total		1,409	3,064		153,914

* Not a transferred institution - contribution for beds.

Source: As for Tables 2.9 and 2.10 (ibid).

health care facilities transfered to the provinces and indicates the name of the facility, the number of active and long term care beds and the date of the agreements. The issue of "paying more than is necessary" stated above needs to be explained. VAC pays the full cost of level III long term care (chronic care) in Nova Scotia, and indeed, in Atlantic Canada. However, in the rest of Canada this type of care is reimbursed at a much lower rate. In Ontario, for example, VAC pays only the co-insurance of per diem fee which is a lot less than the full cost of the per dian chronic care cost. The reason for the difference is that in the non-Atlantic provinces chronic care is part of the provinces' health plans. This is not so in Nova Scotia, thus VAC pays the full per diem costs for all veterans eligible for long term care. VAC also thereby maintains priority access to such longterm beds.

The situation raises two questions. Health and Welfare Canada could argue that the federal government already transfers some money for chronic care under the EPF bloc-funding arrangements as was described earlier in this chapter. The second issue is best expressed in a form of a question: should Nova Scotia establish a chronic care program for its residents, would it still receive a full per diem payment for care offered to veterans from VAC? To put is another way, will Nova Scotia stand to loose VAC payments if it adopted a chronic care program? In principle VAC could pay only the co-insurance fee rather than the full cost of chronic care. This is an issue that will have to be resolved between the federal government and Nova Scotia (or Atlantic Canada). A bilateral arrangement compensating Nova Scotia or any other Atlantic province for such losses may be possible and is probably the best solution to the conundrum.

Appendix of Tables for the Section on Fiscal Federalism and Health Care Programs

Contents:

a) A note on Provincial Health Expenditures and Related Federal Contributions.

b) Provincial Government Health Expenditures for hospital services, medical services, extended health services, and other health services for Newfoundland, Prince Edward Island, Nova Scotia, New Brunswick, Saskatchewan and Canada, for the period 1974-75 to 1988-89 (Tables 2-1A to 2.6A inclusive).

c) Federal contributions under the Established Programs Financing Act and the Canada Assistance Plan for hospital services, medical services, extended health services and other health services for Newfoundland, Prince Edward Island, Nova Scotia, New Brunswick, Saskatchewan, and Canada for the period 1974-75 to 1988-89 (Tables 2.7A to 2.12A inclusive).

d) Federal contributions as a percentage of provincial expenditures on hospital services, medical services, extended health services and other health services, for Newfoundland, Prince Edward Island, Nova Scotia, New Brunswick, Saskatchewan, and Canada for the period 1974-75 to 1988-89 (Tables 2.1A to 2.6A inclusive).

P.S. The Source of all the tables in this Appendix is the Health Information Division of Health and Welfare Canada. These tables dated 16 December 1988 are the latest such data available.

Provincial Health Expenditures and Related Federal Contributions

The following is a series of tables on provincial government expenditures, federal contributions to provincial governments for health purposes under Established Programs Financing and the Canada Assistance Plan, and the percentage that those contributions were of the aforesaid provincial expenditures, by province and territory, 1974-75 to 1988-89:

Common features: data are for fiscal years ending in March. Dollar figures are rounded independently to the nearest thousand for each province and territory; the Canada dollar figures are the sums of the provincial amounts. Percentage figures are shown to the nearest tenth of a per cent. Tables are frequently updated, and are distributed on specific request only; every page shows the date on which it was prepared. A person with a set can determine whether that set has been superseded by telephoning the Health Information Division at (613) 957-1377.

Provincial expenditures: These figures represent the entire expenditure for health purposes made by provincial governments, thereby including the re-spending of federal contributions. All forms of health care are included. The column headed "extended health services" represents, in the case of provincial expenditures, amounts spent for home care and for homes for special care. The figures are mainly derived from the public accounts of the province or territory concerned. The figures marked "p" (preliminary) come principally from the published estimates of the province. In some cases, however, these figures have been adjusted in the light of later, more-nearly-final, data from other official provincial sources. The figures correspond, apart from revisions made from time to time, with those published for the provincial sector in the Departmental publication "National Health Expenditures in Canada".

Federal contributions, Established Programs Financing: These figures represent cash and abated income-tax points provided to the provinces for health purposes under the E.P.F. program for years from 1977-78 onward. The distribution between hospital services and medical care services for those years is arbitrary, being according to the percentage formula promulgated by the federal Department of Finance, while amounts for "extended health services" are those provided for care so designated under the terms of the E.P.F. legislation. The E.P.F. contributions to some provinces were reduced where extra-billing by physicians and user-charges by hospitals were permitted, the reductions being equal to the estimated amount of the bills and charges. The reductions were reimbursed to those provinces that later prohibited the practices. In these tables, both the reductions and the reimbursements are taken into account, and the figures for the relevant years are adjusted accordingly. Figures for years before 1977-78 represent cash contributions under the Hospital Insurance and Diagnostic Services Act and the Medical Care Act.

Federal contributions, Canada Assistance Plan: These figures are estimates, provided by the administration of the C.A.P., of amounts of federal contributions under that Plan that were spent for health purposes.

Federal contributions as a percentage of provincial expenditures: The total of the figures given for the E.P.F. and the C.A.P., calculated as percentages of provincial expenditures. The amount of the federal contribution under E.P.F. is in no way conditioned by the amount of provincial expenditure; the two are independent of one another. Accordingly, variation in the percentage relationship can and does occur over time.

Source: Health Information Division, Health and Welfare Canada, December, 1988.

Table 2.1A

16-Dec-88 NEWFOUNDLAND

FISCAL YEAR	HOSPITAL SERVICES	MEDICAL SERVICES	HOSPITAL AND MEDICAL SERVICES	EXTENDED HEALTH SERVICES	HOSPITAL, MEDICAL, AND EXTENDED SERVICES	OTHER HEALTH SERVICES	TOTAL
Estimated Provincial Government Health Expenditures ($ thousands)							
1974-75	90,577	22,958	113,535	11,295	124,830	49,882	174,712
1975-76	117,970	26,994	144,964	15,219	160,183	47,309	207,492
1976-77	125,124	30,899	156,023	23,296	179,319	43,674	222,993
1977-78	141,053	32,030	173,083	28,456	201,539	35,619	237,158
1978-79	161,284	33,572	194,856	31,695	226,551	39,014	265,565
1979-80	187,784	37,956	225,740	39,146	264,886	43,201	308,087
1980-81	212,547	45,649	258,196	41,765	299,961	46,723	346,684
1981-82	251,542	51,612	303,154	47,202	350,356	58,917	409,273
1982-83	282,507	61,138	343,645	59,414	403,059	76,668	479,727
1983-84	310,412	67,406	377,818	65,193	443,011	85,970	528,981
1984-85	314,388	75,135	389,523	65,348	454,871	82,269	537,140
1985-86	326,712	79,460	406,172	70,805	476,977	93,690	570,667
1986-87	357,242	85,392	442,634	79,609	522,243	102,618	624,861
1987-88p	376,278	94,700	470,978	85,060	556,038	113,926	669,964
1988-89p	399,394	100,198	499,592	89,831	589,423	111,888	701,311
Federal Contributions as a Percentage of Provincial Expenditures (%)							
1974-75	49.6	76.8	55.1	30.5	52.9	4.5	39.1
1975-76	47.7	75.0	52.7	33.9	50.9	4.3	40.3
1976-77	53.7	74.8	57.9	27.0	53.9	5.1	44.3
1977-78	50.4	76.3	55.2	57.3	55.5	5.1	47.9
1978-79	52.1	86.2	58.0	44.7	56.2	6.1	48.8
1979-80	51.5	87.7	57.6	40.2	55.0	7.0	48.3
1980-81	50.6	81.1	56.0	44.1	54.4	7.7	48.1
1981-82	47.7	80.0	53.2	42.3	51.7	6.6	45.2
1982-83	47.7	75.9	52.7	38.1	50.6	5.3	43.3
1983-84	48.1	76.3	53.1	39.3	51.1	6.4	43.8
1984-85	51.4	74.1	55.8	41.5	53.7	6.8	46.5
1985-86	52.2	73.9	56.5	40.9	54.2	6.7	46.4
1986-87	50.3	72.5	54.6	38.4	52.1	7.1	44.7
1987-88p	50.1	68.6	53.8	37.7	51.4	7.0	43.8
1988-89p	49.1	67.4	52.8	37.1	50.4	7.0	43.5

p - Preliminary

Table 2.2A

16-Dec-88 PRINCE EDWARD ISLAND

FISCAL YEAR	HOSPITAL SERVICES	MEDICAL SERVICES	HOSPITAL AND MEDICAL SERVICES	EXTENDED HEALTH SERVICES	HOSPITAL, MEDICAL, AND EXTENDED SERVICES	OTHER HEALTH SERVICES	TOTAL
Estimated Provincial Government Health Expenditures ($ thousands)							
1974-75	20,058	5,910	25,968	4,575	30,543	5,130	35,673
1975-76	24,281	6,472	30,753	6,005	36,758	6,790	43,548
1976-77	25,359	7,209	32,568	6,844	39,412	6,721	46,133
1977-78	27,265	7,990	35,255	7,622	42,877	8,934	51,811
1978-79	31,319	8,946	40,265	8,205	48,470	9,553	58,023
1979-80	34,635	9,440	44,075	9,531	53,606	10,555	64,161
1980-81	39,638	10,961	50,599	10,563	61,162	14,431	75,593
1981-82	45,605	12,881	58,486	12,127	70,613	16,471	87,084
1982-83	56,193	15,295	71,488	13,762	85,250	17,222	102,472
1983-84	59,732	16,780	76,512	14,652	91,164	20,958	112,122
1984-85	61,822	17,690	79,512	15,964	95,476	22,792	118,268
1985-86	64,727	19,631	84,358	18,776	103,134	21,601	124,735
1986-87	69,291	21,808	91,099	22,661	113,760	21,348	135,108
1987-88p	73,037	22,912	95,949	24,486	120,435	22,501	142,936
1988-89p	77,040	24,590	101,630	25,172	126,802	26,286	153,088
Federal Contributions as a Percentage of Provincial Expenditures (%)							
1974-75	43.0	63.7	47.7	69.4	50.9	1.3	43.8
1975-76	43.2	66.8	48.2	58.3	49.8	1.2	42.2
1976-77	46.1	67.8	50.9	73.1	54.7	1.2	46.9
1977-78	53.3	62.6	55.4	39.1	52.5	1.6	43.7
1978-79	56.5	68.2	59.1	48.4	57.3	5.9	48.8
1979-80	60.4	76.3	63.8	42.5	60.0	2.4	50.6
1980-81	58.9	73.4	62.1	45.9	59.3	2.1	48.4
1981-82	56.8	69.2	59.5	44.7	56.9	1.9	46.5
1982-83	51.8	65.5	54.7	42.5	52.7	2.7	44.3
1983-84	54.0	66.1	56.6	45.7	54.9	1.6	44.9
1984-85	56.8	68.4	59.4	40.8	56.3	2.9	46.0
1985-86	58.1	66.0	60.0	38.9	56.1	2.2	46.8
1986-87	57.8	63.3	59.1	34.7	54.3	3.0	46.2
1987-88p	57.9	63.5	59.2	33.8	54.0	4.1	46.2
1988-89p	57.7	62.3	58.8	34.3	54.0	3.1	45.2

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Table 2.3A

16-Dec-88

NOVA SCOTIA

FISCAL YEAR	HOSPITAL SERVICES	MEDICAL SERVICES	HOSPITAL AND MEDICAL SERVICES	EXTENDED HEALTH SERVICES	HOSPITAL, MEDICAL, AND EXTENDED SERVICES	OTHER HEALTH SERVICES	TOTAL
Estimated Provincial Government Health Expenditures ($ thousands)							
1974-75	139,842	45,856	185,698	7,509	193,207	36,503	229,710
1975-76	172,054	55,630	227,684	10,606	238,290	43,204	281,494
1976-77	196,599	60,701	257,300	14,392	271,692	40,381	312,073
1977-78	207,804	66,058	273,862	23,350	297,212	47,477	344,689
1978-79	227,714	72,021	299,735	27,341	327,076	54,106	381,182
1979-80	256,620	78,914	335,534	31,038	366,572	60,113	426,685
1980-81	288,156	90,061	378,217	35,408	413,625	79,830	493,455
1981-82	370,971	102,920	473,891	41,944	515,835	94,962	610,797
1982-83	416,371	123,499	539,870	47,429	587,299	114,240	701,539
1983-84	461,574	136,470	598,044	50,673	648,717	115,209	763,926
1984-85	502,928	152,320	655,248	54,988	710,236	129,692	839,928
1985-86	538,113	168,489	706,602	56,645	763,247	145,079	908,326
1986-87	568,687	176,856	745,543	57,745	803,288	148,912	952,200
1987-88p	605,945	191,299	797,244	60,391	857,635	172,429	1,030,064
1988-89p	640,743	202,042	842,785	76,336	919,121	194,985	1,114,106
Federal Contributions as a Percentage of Provincial Expenditures (%)							
1974-75	47.5	56.8	49.8	50.2	49.8	2.8	42.4
1975-76	47.5	53.6	49.0	55.6	49.3	2.9	42.2
1976-77	49.1	56.0	50.7	55.8	51.0	3.5	44.9
1977-78	52.7	57.1	53.8	85.8	56.3	3.4	49.0
1978-79	55.7	60.6	56.9	72.5	58.2	3.1	50.4
1979-80	56.3	63.1	57.9	72.1	59.1	3.1	51.2
1980-81	55.8	61.5	57.1	72.2	58.4	2.6	49.4
1981-82	48.3	59.9	50.8	66.8	52.1	2.6	44.4
1982-83	48.5	56.3	50.3	67.6	51.7	2.5	43.7
1983-84	48.4	56.4	50.2	71.0	51.8	3.0	44.5
1984-85	48.3	54.9	49.9	72.4	51.6	2.7	44.1
1985-86	48.3	53.2	49.5	77.3	51.5	2.5	43.7
1986-87	48.6	53.8	49.8	83.0	52.2	3.2	44.5
1987-88p	48.2	52.5	49.2	80.0	51.4	3.0	43.3
1988-89p	47.6	52.0	48.7	66.0	50.1	2.7	41.8

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Table 2.4A

16-Dec-88 NEW BRUNSWICK

FISCAL YEAR	HOSPITAL SERVICES	MEDICAL SERVICES	HOSPITAL AND MEDICAL SERVICES	EXTENDED HEALTH SERVICES	HOSPITAL, MEDICAL, AND EXTENDED SERVICES	OTHER HEALTH SERVICES	TOTAL
Estimated Provincial Government Health Expenditures ($ thousands)							
1974-75	107,433	26,277	133,710	3,932	137,642	32,415	170,057
1975-76	132,096	32,189	164,285	14,658	178,943	36,195	215,138
1976-77	156,785	33,867	190,652	22,856	213,508	38,301	251,809
1977-78	170,029	37,744	207,773	27,476	235,249	43,423	278,672
1978-79	184,471	41,456	225,927	31,243	257,170	49,062	306,232
1979-80	196,348	47,470	243,818	41,405	285,223	61,988	347,211
1980-81	229,285	58,531	287,816	51,848	339,664	71,801	411,465
1981-82	277,485	73,982	351,467	64,328	415,795	85,193	500,988
1982-83	327,586	94,138	421,724	80,467	502,191	104,339	606,530
1983-84	341,295	106,187	447,482	84,942	532,424	102,451	634,875
1984-85	369,157	110,585	479,742	88,963	568,705	115,755	684,460
1985-86	386,427	121,072	507,499	93,051	600,550	119,517	720,067
1986-87	403,656	129,942	533,598	87,585	621,183	151,697	772,880
1987-88p	427,622	136,159	563,781	90,305	654,086	178,344	832,430
1988-89p	464,397	153,588	617,985	99,749	717,734	178,672	896,406
Federal Contributions as a Percentage of Provincial Expenditures (%)							
1974-75	51.1	81.8	57.2	21.1	56.1	3.5	46.1
1975-76	51.4	77.0	56.4	15.0	53.1	3.9	44.8
1976-77	50.1	82.7	55.9	26.5	52.8	3.3	45.3
1977-78	51.1	79.3	56.2	61.5	56.9	3.0	48.5
1978-79	55.8	85.5	61.3	58.8	61.0	3.1	51.7
1979-80	60.6	86.3	65.6	47.8	63.0	3.0	52.3
1980-81	57.7	77.8	61.8	43.5	59.0	3.1	49.2
1981-82	53.0	68.5	56.3	38.7	53.6	3.4	45.0
1982-83	50.6	60.6	52.8	35.2	50.0	3.0	41.9
1983-84	53.8	59.5	55.1	36.8	52.2	3.1	44.3
1984-85	53.2	62.0	55.2	38.3	52.6	2.8	44.2
1985-86	54.0	60.2	55.5	39.9	53.1	3.3	44.8
1986-87	57.1	59.4	57.7	40.2	55.2	3.8	45.1
1987-88p	55.3	60.1	56.5	41.0	54.3	3.3	43.4
1988-89p	53.1	55.3	53.7	39.6	51.7	3.3	42.1

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Table 2.5A

16-Dec-88 SASKATCHEWAN

FISCAL YEAR	HOSPITAL SERVICES	MEDICAL SERVICES	HOSPITAL AND MEDICAL SERVICES	EXTENDED HEALTH SERVICES	HOSPITAL, MEDICAL, AND EXTENDED SERVICES	OTHER HEALTH SERVICES	TOTAL
Estimated Provincial Government Health Expenditures ($ thousands)							
1974-75	151,863	47,143	199,006	19,566	218,572	41,509	260,081
1975-76	185,386	54,179	239,565	21,776	261,341	55,248	316,589
1976-77	229,710	62,469	292,179	24,390	316,569	63,996	380,565
1977-78	252,069	68,823	320,892	26,340	347,232	74,507	421,739
1978-79	261,479	74,872	336,351	31,447	367,798	87,046	454,844
1979-80	287,381	82,667	370,048	53,178	423,226	104,374	527,600
1980-81	345,111	97,876	442,987	62,931	505,918	125,297	631,215
1981-82	370,917	116,061	486,978	110,009	596,987	139,975	736,962
1982-83	438,146	141,321	579,467	156,473	735,940	164,930	900,870
1983-84	473,470	153,437	626,907	183,053	809,960	178,356	988,316
1984-85	497,665	166,223	663,888	183,377	847,265	188,266	1,035,531
1985-86	519,464	178,353	697,817	197,513	895,330	228,604	1,123,934
1986-87	557,732	196,527	754,259	221,841	976,100	286,179	1,262,279
1987-88p	570,329	202,400	772,729	242,991	1,015,720	248,885	1,264,605
1988-89p	603,323	205,505	808,828	246,035	1,054,863	248,899	1,303,762
Federal Contributions as a Percentage of Provincial Expenditures (%)							
1974-75	50.6	63.4	53.7	31.2	51.6	4.0	44.0
1975-76	50.3	63.4	53.3	52.3	53.2	2.6	44.4
1976-77	47.8	62.3	50.9	65.3	52.0	2.0	43.6
1977-78	48.2	60.8	50.9	98.2	54.5	1.6	45.1
1978-79	54.4	65.4	56.8	71.5	58.1	1.3	47.2
1979-80	56.9	68.1	59.4	47.1	57.9	1.0	46.6
1980-81	52.9	64.2	55.4	49.4	54.6	0.6	43.9
1981-82	55.2	60.7	56.5	40.3	53.5	0.6	43.4
1982-83	53.0	56.6	53.9	33.4	49.5	0.8	40.6
1983-84	54.4	57.8	55.2	28.9	49.3	0.8	40.5
1984-85	56.4	57.3	56.7	32.7	51.5	1.1	42.3
1985-86	58.0	58.9	58.2	26.8	51.3	1.1	41.1
1986-87	57.3	56.0	57.0	24.7	49.6	0.9	38.6
1987-88p	59.0	57.3	58.6	23.7	50.2	0.9	40.5
1988-89p	57.9	58.5	58.1	24.8	50.3	1.0	40.9

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Table 2.6A

16-Dec-88 CANADA

FISCAL YEAR	HOSPITAL SERVICES	MEDICAL SERVICES	HOSPITAL AND MEDICAL SERVICES	EXTENDED HEALTH SERVICES	HOSPITAL, MEDICAL, AND EXTENDED SERVICES	OTHER HEALTH SERVICES	TOTAL
Estimated Provincial Government Health Expenditures ($ thousands)							
1974-75	4,185,184	1,587,821	5,773,005	644,959	6,417,964	1,017,611	7,435,575
1975-76	5,149,574	1,837,713	6,987,287	888,164	7,875,451	1,273,489	9,148,940
1976-77	5,925,771	2,051,844	7,977,615	1,095,034	9,072,649	1,401,573	10,474,222
1977-78	6,176,071	2,258,167	8,434,238	1,272,030	9,706,268	1,624,663	11,330,931
1978-79	6,734,133	2,553,714	9,287,847	1,483,330	10,771,177	1,833,622	12,604,799
1979-80	7,372,574	2,812,776	10,185,350	1,724,442	11,909,792	2,173,615	14,083,407
1980-81	8,575,337	3,289,334	11,864,671	2,001,094	13,865,765	2,524,332	16,390,097
1981-82	10,141,808	3,835,104	13,976,912	2,417,666	16,394,578	3,055,294	19,449,872
1982-83	12,052,370	4,444,697	16,497,067	2,732,462	19,229,529	3,627,711	22,857,240
1983-84	12,981,034	5,063,680	18,044,714	3,004,783	21,049,497	3,995,896	25,045,393
1984-85	13,635,585	5,474,588	19,110,173	3,123,122	22,233,295	4,384,080	26,617,375
1985-86	14,463,939	5,993,767	20,457,706	3,333,411	23,791,117	4,921,536	28,712,653
1986-87	15,734,369	6,725,373	22,459,742	3,608,726	26,068,468	5,431,059	31,499,527
1987-88p	16,816,535	7,402,655	24,219,190	3,940,692	28,159,882	5,723,042	33,882,924
1988-89p	17,991,050	7,957,708	25,948,758	4,359,293	30,308,051	6,188,174	36,496,225
Federal Contributions as a Percentage of Provincial Expenditures (%)							
1974-75	47.1	46.1	46.8	20.3	44.1	3.4	38.6
1975-76	47.3	45.6	46.9	24.1	44.3	3.2	38.6
1976-77	47.5	46.6	47.3	25.6	44.7	3.4	39.1
1977-78	50.7	47.7	49.9	43.5	49.0	3.2	42.5
1978-79	53.3	48.4	51.9	41.1	50.4	3.1	43.6
1979-80	55.6	50.2	54.1	40.6	52.2	2.9	44.6
1980-81	53.9	48.4	52.4	37.4	50.2	2.9	42.9
1981-82	51.3	46.7	50.0	35.1	47.8	2.6	40.7
1982-83	48.5	45.2	47.6	34.8	45.8	2.6	38.9
1983-84	49.7	43.9	48.1	34.9	46.2	2.7	39.2
1984-85	51.1	43.2	48.9	36.6	47.1	2.8	39.8
1985-86	51.7	42.2	48.9	36.2	47.1	3.4	39.6
1986-87	51.5	42.7	48.9	35.5	47.0	2.9	39.4
1987-88p	50.6	39.6	47.2	34.3	45.4	3.4	38.3
1988-89p	49.8	38.7	46.4	32.3	44.4	2.8	37.4

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Table 2.7A

NEWFOUNDLAND

FISCAL YEAR	HOSPITAL SERVICES	MEDICAL SERVICES	HOSPITAL AND MEDICAL SERVICES	EXTENDED HEALTH SERVICES	HOSPITAL, MEDICAL, AND EXTENDED SERVICES	OTHER HEALTH SERVICES	TOTAL
	Federal Contributions, Established Programs Financing ($ thousands)						
1974-75	44,949	17,626	62,575	-	62,575	-	62,575
1975-76	56,218	20,233	76,451	-	76,451	-	76,451
1976-77	67,201	23,112	90,313	-	90,313	-	90,313
1977-78	71,024	24,454	95,478	11,280	106,758	-	106,758
1978-79	84,093	28,953	113,046	12,607	125,653	-	125,653
1979-80	96,664	33,281	129,945	13,768	143,713	-	143,713
1980-81	107,587	37,042	144,629	15,301	159,930	-	159,930
1981-82	119,940	41,295	161,235	17,058	178,293	-	178,293
1982-83	134,803	46,414	181,217	19,172	200,389	-	200,389
1983-84	149,335	51,416	200,751	21,239	221,990	-	221,990
1984-85	161,614	55,643	217,257	22,985	240,242	-	240,242
1985-86	170,664	58,758	229,422	24,272	253,694	-	253,694
1986-87	179,838	61,919	241,757	25,577	267,334	-	267,334
1987-88p	188,662	64,955	253,617	26,832	280,449	-	280,449
1988-89p	196,215	67,556	263,771	27,906	291,677	-	291,677
	Federal Contributions, Canada Assistance Plan ($ thousands)						
1974-75	-	-	-	3,450	3,450	2,233	5,683
1975-76	-	-	-	5,156	5,156	2,012	7,168
1976-77	-	-	-	6,289	6,289	2,244	8,533
1977-78	-	-	-	5,012	5,012	1,813	6,825
1978-79	-	-	-	1,562	1,562	2,393	3,955
1979-80	-	-	-	1,967	1,967	3,011	4,978
1980-81	-	-	-	3,131	3,131	3,615	6,746
1981-82	-	-	-	2,885	2,885	3,914	6,799
1982-83	-	-	-	3,477	3,477	4,078	7,555
1983-84	-	-	-	4,408	4,408	5,515	9,923
1984-85	-	-	-	4,162	4,162	5,570	9,732
1985-86	-	-	-	4,676	4,676	6,261	10,937
1986-87	-	-	-	4,962	4,962	7,310	12,272
1987-88p	-	-	-	5,231	5,231	7,986	13,217
1988-89p	-	-	-	5,394	5,394	7,792	13,186

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Table 2.8A

PRINCE EDWARD ISLAND

FISCAL YEAR	HOSPITAL SERVICES	MEDICAL SERVICES	HOSPITAL AND MEDICAL SERVICES	EXTENDED HEALTH SERVICES	HOSPITAL, MEDICAL, AND EXTENDED SERVICES	OTHER HEALTH SERVICES	TOTAL
Federal Contributions, Established Programs Financing ($ thousands)							
1974-75	8,615	3,765	12,380	-	12,380	-	12,380
1975-76	10,493	4,325	14,818	-	14,818	-	14,818
1976-77	11,682	4,887	16,569	-	16,569	-	16,569
1977-78	14,523	5,000	19,523	2,404	21,927	-	21,927
1978-79	17,707	6,097	23,804	2,706	26,510	-	26,510
1979-80	20,930	7,206	28,136	2,981	31,117	-	31,117
1980-81	23,358	8,042	31,400	3,322	34,722	-	34,722
1981-82	25,883	8,912	34,795	3,681	38,476	-	38,476
1982-83	29,094	10,018	39,112	4,138	43,250	-	43,250
1983-84	32,227	11,095	43,322	4,583	47,905	-	47,905
1984-85	35,124	12,093	47,217	4,995	52,212	-	52,212
1985-86	37,627	12,955	50,582	5,351	55,933	-	55,933
1986-87	40,074	13,797	53,871	5,699	59,570	-	59,570
1987-88p	42,268	14,553	56,821	6,011	62,832	-	62,832
1988-89p	44,476	15,312	59,788	6,325	66,113	-	66,113
Federal Contributions, Canada Assistance Plan ($ thousands)							
1974-75	-	-	-	3,173	3,173	65	3,238
1975-76	-	-	-	3,500	3,500	80	3,580
1976-77	-	-	-	5,003	5,003	79	5,082
1977-78	-	-	-	579	579	145	724
1978-79	-	-	-	1,268	1,268	566	1,834
1979-80	-	-	-	1,070	1,070	253	1,323
1980-81	-	-	-	1,526	1,526	306	1,832
1981-82	-	-	-	1,738	1,738	307	2,045
1982-83	-	-	-	1,713	1,713	460	2,173
1983-84	-	-	-	2,111	2,111	342	2,453
1984-85	-	-	-	1,518	1,518	668	2,186
1985-86	-	-	-	1,946	1,946	469	2,415
1986-87	-	-	-	2,166	2,166	643	2,809
1987-88p	-	-	-	2,256	2,256	932	3,188
1988-89p	-	-	-	2,305	2,305	811	3,116

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Table 2.9A

NOVA SCOTIA

FISCAL YEAR	HOSPITAL SERVICES	MEDICAL SERVICES	HOSPITAL AND MEDICAL SERVICES	EXTENDED HEALTH SERVICES	HOSPITAL, MEDICAL, AND EXTENDED SERVICES	OTHER HEALTH SERVICES	TOTAL
Federal Contributions, Established Programs Financing ($ thousands)							
1974-75	66,430	26,065	92,495	-	92,495	-	92,495
1975-76	81,778	29,836	111,614	-	111,614	-	111,614
1976-77	96,612	33,964	130,576	-	130,576	-	130,576
1977-78	109,536	37,713	147,249	16,700	163,949	-	163,949
1978-79	126,843	43,672	170,515	18,649	189,164	-	189,164
1979-80	144,601	49,786	194,387	20,595	214,982	-	214,982
1980-81	160,753	55,347	216,100	22,863	238,963	-	238,963
1981-82	179,048	61,646	240,694	25,465	266,159	-	266,159
1982-83	201,955	69,536	271,491	28,723	300,214	-	300,214
1983-84	223,355	76,901	300,256	31,767	332,023	-	332,023
1984-85	243,021	83,672	326,693	34,563	361,256	-	361,256
1985-86	260,103	89,553	349,656	36,992	386,648	-	386,648
1986-87	276,300	95,131	371,431	39,296	410,727	-	410,727
1987-88p	291,824	100,475	392,299	41,503	433,802	-	433,802
1988-89p	305,277	105,106	410,383	43,417	453,800	-	453,800
Federal Contributions, Canada Assistance Plan ($ thousands)							
1974-75	-	-	-	3,767	3,767	1,022	4,789
1975-76	-	-	-	5,902	5,902	1,247	7,149
1976-77	-	-	-	8,035	8,035	1,402	9,437
1977-78	-	-	-	3,340	3,340	1,609	4,949
1978-79	-	-	-	1,166	1,166	1,671	2,837
1979-80	-	-	-	1,781	1,781	1,874	3,655
1980-81	-	-	-	2,702	2,702	2,100	4,802
1981-82	-	-	-	2,554	2,554	2,450	5,004
1982-83	-	-	-	3,322	3,322	2,890	6,212
1983-84	-	-	-	4,227	4,227	3,400	7,627
1984-85	-	-	-	5,229	5,229	3,508	8,737
1985-86	-	-	-	6,786	6,786	3,637	10,423
1986-87	-	-	-	8,610	8,610	4,736	13,346
1987-88p	-	-	-	6,838	6,838	5,203	12,041
1988-89p	-	-	-	6,966	6,966	5,221	12,187

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Table 2.10A

NEW BRUNSWICK

FISCAL YEAR	HOSPITAL SERVICES	MEDICAL SERVICES	HOSPITAL AND MEDICAL SERVICES	EXTENDED HEALTH SERVICES	HOSPITAL, MEDICAL, AND EXTENDED SERVICES	OTHER HEALTH SERVICES	TOTAL
Federal Contributions, Established Programs Financing ($ thousands)							
1974-75	54,937	21,488	76,425	-	76,425	-	76,425
1975-76	67,955	24,778	92,733	-	92,733	-	92,733
1976-77	78,621	27,999	106,620	-	106,620	-	106,620
1977-78	86,937	29,932	116,869	13,742	130,611	-	130,611
1978-79	102,956	35,448	138,404	15,400	153,804	-	153,804
1979-80	118,916	40,943	159,859	16,937	176,796	-	176,796
1980-81	132,277	45,543	177,820	18,813	196,633	-	196,633
1981-82	147,136	50,659	197,795	20,926	218,721	-	218,721
1982-83	165,723	57,060	222,783	23,570	246,353	-	246,353
1983-84	183,480	63,172	246,652	26,095	272,747	-	272,747
1984-85	196,345	68,577	264,922	28,353	293,275	-	293,275
1985-86	208,773	72,905	281,678	30,150	311,828	-	311,828
1986-87	230,666	77,190	307,856	31,970	339,826	-	339,826
1987-88p	236,508	81,782	318,290	33,636	351,926	-	351,926
1988-89p	246,737	84,951	331,688	35,091	366,779	-	366,779
Federal Contributions, Canada Assistance Plan ($ thousands)							
1974-75	-	-	-	829	829	1,127	1,956
1975-76	-	-	-	2,198	2,198	1,416	3,614
1976-77	-	-	-	6,056	6,056	1,271	7,327
1977-78	-	-	-	3,151	3,151	1,311	4,462
1978-79	-	-	-	2,973	2,973	1,503	4,476
1979-80	-	-	-	2,872	2,872	1,840	4,712
1980-81	-	-	-	3,722	3,722	2,225	5,947
1981-82	-	-	-	3,952	3,952	2,891	6,843
1982-83	-	-	-	4,758	4,758	3,166	7,924
1983-84	-	-	-	5,177	5,177	3,188	8,365
1984-85	-	-	-	5,750	5,750	3,268	9,018
1985-86	-	-	-	6,989	6,989	3,922	10,911
1986-87	-	-	-	3,198	3,198	5,728	8,926
1987-88p	-	-	-	3,384	3,384	5,876	9,260
1988-89p	-	-	-	4,442	4,442	5,896	10,338

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Table 2.11A

SASKATCHEWAN

FISCAL YEAR	HOSPITAL SERVICES	MEDICAL SERVICES	HOSPITAL AND MEDICAL SERVICES	EXTENDED HEALTH SERVICES	HOSPITAL, MEDICAL, AND EXTENDED SERVICES	OTHER HEALTH SERVICES	TOTAL
	Federal Contributions, Established Programs Financing ($ thousands)						
1974-75	76,902	29,890	106,792	-	106,792	-	106,792
1975-76	93,337	34,349	127,686	-	127,686	-	127,686
1976-77	109,857	38,899	148,756	-	148,756	-	148,756
1977-78	121,465	41,820	163,285	18,740	182,025	-	182,025
1978-79	142,167	48,948	191,115	21,020	212,135	-	212,135
1979-80	163,540	56,307	219,847	23,293	243,140	-	243,140
1980-81	182,494	62,833	245,327	25,955	271,282	-	271,282
1981-82	204,586	70,439	275,025	29,097	304,122	-	304,122
1982-83	232,164	79,937	312,101	33,020	345,121	-	345,121
1983-84	257,604	88,692	346,296	36,637	382,933	-	382,933
1984-85	280,907	95,264	376,171	39,951	416,122	-	416,122
1985-86	301,134	105,131	406,265	42,828	449,093	-	449,093
1986-87	319,650	110,056	429,706	45,461	475,167	-	475,167
1987-88p	336,682	115,919	452,601	47,883	500,484	-	500,484
1988-89p	349,337	120,276	469,613	49,683	519,296	-	519,296
	Federal Contributions, Canada Assistance Plan ($ thousands)						
1974-75	-	-	-	6,096	6,096	1,654	7,750
1975-76	-	-	-	11,396	11,396	1,454	12,850
1976-77	-	-	-	15,920	15,920	1,278	17,198
1977-78	-	-	-	7,113	7,113	1,221	8,334
1978-79	-	-	-	1,460	1,460	1,129	2,589
1979-80	-	-	-	1,737	1,737	1,039	2,776
1980-81	-	-	-	5,130	5,130	783	5,913
1981-82	-	-	-	15,272	15,272	794	16,066
1982-83	-	-	-	19,207	19,207	1,394	20,601
1983-84	-	-	-	16,234	16,234	1,378	17,612
1984-85	-	-	-	20,004	20,004	2,148	22,152
1985-86	-	-	-	10,050	10,050	2,493	12,543
1986-87	-	-	-	9,240	9,240	2,658	11,898
1987-88p	-	-	-	9,631	9,631	2,328	11,959
1988-89p	-	-	-	11,215	11,215	2,521	13,736

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Table 2.12A

CANADA

FISCAL YEAR	HOSPITAL SERVICES	MEDICAL SERVICES	HOSPITAL AND MEDICAL SERVICES	EXTENDED HEALTH SERVICES	HOSPITAL, MEDICAL, AND EXTENDED SERVICES	OTHER HEALTH SERVICES	TOTAL
	Federal Contributions, Established Programs Financing ($ thousands)						
1974-75	1,969,345	731,523	2,700,868	-	2,700,868	-	2,700,868
1975-76	2,435,941	838,882	3,274,823	-	3,274,823	-	3,274,823
1976-77	2,814,636	955,738	3,770,374	-	3,770,374	-	3,770,374
1977-78	3,130,015	1,077,661	4,207,676	465,154	4,672,830	-	4,672,830
1978-79	3,588,934	1,235,668	4,824,602	520,314	5,344,916	-	5,344,916
1979-80	4,100,583	1,411,826	5,512,409	581,246	6,093,655	-	6,093,655
1980-81	4,621,268	1,591,099	6,212,367	650,435	6,862,802	-	6,862,802
1981-82	5,202,806	1,791,322	6,994,128	731,492	7,725,620	-	7,725,620
1982-83	5,840,672	2,011,034	7,851,706	830,695	8,682,401	-	8,682,401
1983-84	6,451,626	2,221,288	8,672,914	917,577	9,590,491	-	9,590,491
1984-85	6,973,629	2,362,820	9,336,449	996,850	10,333,299	-	10,333,299
1985-86	7,472,414	2,527,047	9,999,461	1,068,794	11,068,255	-	11,068,255
1986-87	8,100,406	2,872,625	10,973,031	1,140,985	12,114,016	-	12,114,016
1987-88p	8,508,422	2,929,792	11,438,214	1,210,074	12,648,288	-	12,648,288
1988-89p	8,951,062	3,081,842	12,032,904	1,273,028	13,305,932	-	13,305,932
	Federal Contributions, Canada Assistance Plan ($ thousands)						
1974-75	-	-	-	131,238	131,238	34,460	165,698
1975-76	-	-	-	213,888	213,888	40,436	254,324
1976-77	-	-	-	280,857	280,857	48,028	328,885
1977-78	-	-	-	87,843	87,843	51,482	139,325
1978-79	-	-	-	88,975	88,975	57,231	146,206
1979-80	-	-	-	118,024	118,024	63,501	181,525
1980-81	-	-	-	97,493	97,493	73,230	170,723
1981-82	-	-	-	116,978	116,978	80,696	197,674
1982-83	-	-	-	120,270	120,270	95,909	216,179
1983-84	-	-	-	131,694	131,694	106,726	238,420
1984-85	-	-	-	145,553	145,553	123,020	268,573
1985-86	-	-	-	136,615	136,615	165,355	301,970
1986-87	-	-	-	138,988	138,988	158,465	297,453
1987-88p	-	-	-	142,723	142,723	193,516	336,239
1988-89p	-	-	-	155,859	155,859	174,335	330,194

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THE CANADA ASSISTANCE PLAN

Prior to 1966 there were four major shared-cost programs in the field of social welfare. These were the old age assistance, blind persons allowances, disabled persons allowances, and unemployment assistance. All were open-ended, with the matching formula requiring the federal government to pay for 75 percent of the cost of blind persons allowances and 50 percent for the others.

In order to (a) consolidate the existing shared-cost programs, (b) provide greater flexibility to the provinces and (c) extend the scope and coverage of services to the various groups of needy persons, these shared-cost programs were all replaced by the Canada Assistance Plan in 1966. It covered in addition to above four categories of assistance a wide range of other services and/or persons needing public assistance such as needy mothers, dependent children, homes for special care, nursing homes, domiciliary care facilities, hostels for transients, institutional care for children, work activity programs, welfare programs for native Indians, a variety of health care costs for those in certain type of institutional care, homes for unmarried mothers, etc. Eligible costs included direct financial assistance, welfare services, and administrative costs. Capital costs and the operating costs of plant and equipment were not included. CAP left wide discretion to provinces in choosing their priorities, levels of coverage and benefits, and the allocation of social welfare expenditures. The matching formula was 50 percent of all eligible provincial expenditures, and open-ended. The conditions which the provinces were to

meet were few. The provinces must agree to provide adequately for the basic requirements of the needy including food, shelter, clothing, household supplies, etc. The eligibility requirement is that of "need" of the individual beneficiaries, in contrast to the income or means test of the previous four cost-sharing schemes. Finally, no residence requirement may be imposed as a condition of receiving aid.

The CAP is generally credited with having played an important role in the expansion of the provinces' social security systems, especially in economically disadvantaged provinces including Nova Scotia and the Atlantic Provinces. It help expand the range and quality of social services such as case-work, counselling, day care, homemaker services, child welfare, and a variety of benefits for the disabled, elderly and poor families and children (National Council of Welfare, 1981; Ismael, 1985). While some provinces were providing a range of health services to the needy before the advent of the Canada Assistance Plan (Department of National Health and Welfare, 1959), the Plan allowed other provinces to do so and generally permitted more services to be covered to a greater number of needy persons throughout Canada. The amount of federal contributions for health services provided through the Canada Assistance Plan to the provinces for the years 1974-75 to 1988-89 are given in Tables 2.1A to 2.6A in the appendix to the previous section. In Table 2.12A for instance, it shows that the federal government transferred more than $174 million to the province in the fiscal year 1988-89 for health care services provided under the CAP, in addition to the almost $156 million for extended health care services. The overall importance of CAP may be ascertained by noting that in 1987-88, federal

transfers for CAP was $4.19 billion (as shown in Table 3.1). The total amount for federal equalization payments in that year was $5.6 billion. The amount of CAP transfers to provinces and its per capita value is shown in Table 3.1. There is evidently wide differences in the per capita transfer to the provinces under this shared-cost program. Nova Scotia ranks the third lowest (after Ontario and Newfoundland) among the provinces in terms of the per capita federal transfers for CAP services, whereas New Brunswick is the second highest. But this "fact" must be interpreted with care and caution.

From Table 3.2 it can be seen that Newfoundland and P.E.I. ranked high by per capita social service expenditures. Ontario, Nova Scotia and Manitoba had consistently low per capita spending levels. This is partly due to the much greater role played by municipalities in providing social assistance and personal social services in these provinces (Manga and Muckle, 1987). Some of the municipal expenditure is not eligible for cost-sharing hence explaining some, though hardly all, of the differences shown in Table 3.3. The extent of voluntary services too accounts for some of the low spending for services covered under the Canada Assistance Plan. Ontario, Nova Scotia and Manitoba have child and family agencies or children's aid societies operating at the local level. The figures in Tables 3.1, 3.2 and 3.3 are therefore correspondingly lower. Furthermore, in the sixties and seventies the municipal role in social services were substantially modified, and in some instances, eliminated and taken over by the province. In New Brunswick the role of municipalities and children's aid societies was terminated in 1967. In Alberta, short-term social

Table 3.1

Federal Contributions Towards Expenditures Under The Canada Assistance Plan

	Total Amount in $ Millions	Per Capita Value	Rank
Newfoundland	81.9	144.14	11
P.E. Island	22.5	176.74	5
Nova Scotia	133.6	152.01	9
New Brunswick	150.0	210.58	3
Quebec	1,163.6	176.50	6
Ontario	1,193.5	128.74	12
Manitoba	171.4	158.85	7
Saskatchewan	159.1	156.90	8
Alberta	452.2	189.97	4
B. Columbia	648.4	221.62	2
N.W.T.	12.4	239.85	1
Yukon	3.7	151.64	10
Total	4,192.3	163.60	

Source: Federal-Provincial Programs and Activities: A Descriptive Inventory 1987-88, Federal-Provincial Relations Office, Department of Finance, June 1988.

Table 3.2

Ranking of Provinces by Per Capita Social Service Department Expenditures 1963-64 to 1981-82 (Constant 1971 Dollars)

1963-64 Range $12.13-$57.16	Nfld.	P.E.I.	Alta.	Que.	Man.	B.C.	Sask.	N.B.	N.S.	Ont.
Mean $23.96	57.16	33.76	33.47	32.42	25.73	25.48	25.13	25.01	16.04	12.13
1966-67 Range $16.96-$70.88	P.E.I.	Nfld.	Que.	B.C.	Alta.	Man.	N.B.	Sask.	Ont.	N.S.
Mean $34.00	70.88	67.68	49.53	45.18	40.80	37.13	26.28	24.71	17.13	16.96
1969-70 Range $18.57-$86.77	Nfld.	Que.	P.E.I.	B.C.	Man.	Alta.	N.B.	Ont.	Sask.	N.S.
Mean $52.36	86.77	79.83	68.96	52.59	49.95	49.55	43.30	36.26	24.83	18.57
1972-73 Range $46.31-$112.86	Que.	Nfld.	Man.	P.E.I.	Alta.	N.B.	B.C.	N.S.	Ont.	Sask.
Mean $75.70	112.86	97.60	85.88	82.53	80.63	73.48	71.35	52.01	50.34	46.31
1975-76 Range $70.64-$145.87	Que.	B.C.	P.E.I.	N.B.	Nfld.	Sask.	Alta.	Man.	Ont.	N.S.
Mean $106.15	145.87	136.02	116.28	114.07	112.45	106.15	97.82	75.95	75.17	70.64
1978-79 Range $80.74-$175.06	Que.	B.C.	N.B.	Sask.	P.E.I.	Nfld.	Alta.	Man.	N.S.	Ont.
Mean $115.65	175.06	122.38	116.93	114.18	113.11	110.85	99.05	86.90	82.57	80.74
1980-81 Range $81.95-$187.64	Que.	B.C.	Alta.	P.E.I.	Sask.	Nfld.	N.B.	Man.	N.S.	Ont.
Mean $122.85	187.64	130.30	128.82	122.56	113.17	106.36	104.34	92.37	85.62	81.95
1981-82 Range $83.91-$190.11	Que.	Alta.	Sask.	P.E.I.	B.C.	Nfld.	N.B.	Man.	N.S.	Ont.
Mean $126.12	190.11	143.00	125.82	124.87	124.44	107.48	104.80	96.97	89.61	83.91

1 This table is taken from Hepworth, P. (1985), "Trends in Provincial Social Service Department Expenditures 1963-1982", in Ismael, J.S. (editor), Canadian Social Welfare Policy: Federal and Provincial Dimensions, Montreal, McGill-Queen's University Press.

Table 3.3

Ranking of Provinces by Per Capita Federal Contributions to Provincial Social Service Departments 1969-70 to 1981-82 (Constant 1971 Dollars)

	1	2	3	4	5	6	7	8	9	10
1969-70 Range $19.01-$41.43	Nfld.	P.E.I.	Que.	B.C.	Man.	Alta.	N.S.	N.B.	Sask.	Ont.
Mean $23.27	41.43	31.36	28.42	21.88	21.87	21.25	20.89	20.02	19.72	19.01
1972-73 Range $25.74-$46.02	Nfld.	Que.	P.E.I.	Man.	N.B.	Sask.	Alta.	B.C.	N.S.	Ont.
Mean $33.77	46.02	45.55	36.67	34.95	33.88	30.88	30.35	29.22	26.47	25.74
1975-76 Range $33.59-$80.98	P.E.I.	Que.	B.C.	N.B.	Nfld.	Man.	Alta.	Ont.	N.S.	Sask.
Mean $45.68	58.82	55.72	53.32	53.01	46.84	42.79	39.08	37.79	34.99	33.59
1978-79 Range $42.01-$71.45	Que.	P.E.I.	N.B.	B.C.	Nfld.	Sask.	Alta.	Man.	N.S.	Ont.
Mean $53.41	71.45	64.83	62.34	57.30	51.56	47.61	47.22	45.11	43.28	42.01
1980-81 Range $42.53-$77.09	Que.	B.C.	P.E.I.	N.B.	Nfld.	Sask.	Alta.	N.S.	Man.	Ont.
Mean $56.20	77.09	66.57	65.29	64.56	54.33	48.01	47.02	44.94	44.75	42.53
1981-82 Range $42.89-$75.48	Que.	P.E.I.	N.B.	B.C.	Alta.	Nfld.	Sask.	Man.	N.S.	Ont.
Mean $57.08	75.48	74.14	67.05	64.35	56.95	55.50	50.16	47.28	46.32	42.89

These observations should not be construed as an argument against the view that Nova Scotia may simply be spending less on social services than other provinces. It probably is, but the force of the observations made above is to suggest that we do not know the size of the relative "underspending". Also, it should be noted that the low levels of spending in Ontario may be due to lower levels of unemployment and lower duration of unemployment.

Source: Hepworth, P. (1985) "Trends in Provincial Social Service Department Expenditures 1963-1982", in Ismael, J.S. (editor), Canadian Social Welfare Policy: Federal and Provincial Dimensions, Montreal, McGill-Queen's University Press.

assistance was removed from Edmonton and Calgary to the provincial level. In the 1970's, the social services department of Vancouver ceased operation in 1974, as did several agencies responsible for child welfare. Such organizational shifts, and the rather significant differences in the roles of the private voluntary sector makes interprovincial comparisons of the type shown in Tables 3.1, 3.2 and 3.3 very difficult and therefore less precise. These observations should not be construed as an argument against the view that Nova Scotia may simply be spending less on social services than other provinces. It probably is, but the force of the observations made above is to suggest that we do not know the size of the relative "underspending". Also, it should be noted that the low levels of spending in Ontario may be due to lower levels of unemployment and lower durations of unemployment. There are nevertheless, some patterns and trends worth noting. Ontario, Nova Scotia and Manitoba are shown to spend much less than other provinces for CAP services and therefore received less in per capita terms from the federal government. Newfoundland's per capita spending has gradually drifted from being the highest to that below the national average. Prince Edward Island has consistently been one of the bigger spenders on social services in per capita terms throughout the sixties, seventies and eighties, as is Quebec.

The CAP was part of the federal contracting or opting out offer in 1966 mentioned in the previous section. It was, however, the only major cost-shared program not included in the negotiations that led to the new EPF arrangements of 1977. It was, nevertheless, the subject of a quite separate but concurrent set of negotiations. The provinces were not as

dissatisfied with the CAP cost-sharing program as they were other programs, though there were disagreement and strain over federal proposals over income support and income supplementation following the publication of a federal working paper on social security (Lalonde, 1973). One of the controversial proposal involved a system of "income supplementation" for the working poor in which provinces were to set the criteria and the federal government paying two-thirds of the cost (Lewis, 1979, 101). There was not as great a need to move towards a block funding for services and benefits covered by CAP. The desirable levels of benefits or support to the quite different population groups of the needy, quite reasonably must vary from province to province. The mix and size of the different groups of needy too varies from province to province. Cost differentials under CAP among provinces tend to be relatively high because of regional differences in incomes and unemployment. There are major differences in the income support levels and in the access to and quality of social services between provinces (Canadian Council on Social Development, 1981, Hepworth, 1985). Given this heterogeneity of need some sort of shared-cost program based on provincial costs continued to seem appropriate. A common complaint of the financing formula of CAP is that a flat 50 percent contribution of eligible costs takes little account of the diversity of social problems and the varying costs of services among provinces. This is specially important vis-à-vis CAP because it is the provinces (such as Atlantic provinces) with the least fiscal capacity that have the greater than average number of persons in need. Even with fiscal equalization payments, such provinces will be compelled to have greater than average tax burdens if they wish to

provide levels of assistance equal to other provinces. The Parliamentary Task Force on Federal-Provincial Fiscal Arrangement thus recommended that "fiscal arrangements recognize interprovincial differences in cost arising from differing levels of need for social assistance payment to individuals" (Breau Report, 1981, 149).

As was mentioned earlier, parts of the CAP were subject to the EPF Act of 1977. The block-funded Extended Health Care Services (EHCS) included under the EPF Act in effect covered services that were previously covered by CAP. These include nursing home intermediate care service for adults, adult residential care and converted mental hospitals for adults, home care services for both adults and children, and ambulatory health care services for both adults and children. As of April 1, 1977 these health care services for persons in need were no longer cost-shareable under CAP in accordance with Section 5(2)(c) of the Canada Assistance Plan Act (Health and Welfare Canada, 1981, 2). Other than the EHCS, the EPF Act had no impact on CAP. One reason for the block-funded EHCS is to remove from the provinces the incentive to shift health care services from medicare programs (where there was no longer cost-sharing) to those health care programs covered by CAP where cost-sharing was still in effect.

There was, however, an attempt to block-fund some parts of CAP other than the health care services covered by the EHCS. Certain social services such as daycare, rehabilitation counselling, crisis intervention services, information and referral services, home support, meal services, transportation of the disabled, employment-related services, community services and administration costs of the above services, were all included

in a proposed Social Services Financing Act (Bill C-55) and given first reading in Parliament on May 12, 1978. The proposed Act offered more federal funds for the services hitherto covered under the CAP. It was, however, withdrawn by the government when the provinces refused to renegotiate the financial arrangements embodied in the EPF Act of 1977 (Courchene, 1979). The federal government also offered the excuse that the growth in its transfers to the provinces was forcing it to reassess its expenditure priorities. The proposed Social Services Act was cited in this connection (Lewis, 1979, 88).

Bill C-55 provided for the financing of the above services by a federal cash payment consisting of a "basic cash contribution" and a "levelling payment" which may be positive or negative. The cash payments for 1978-79 was to be the national average per capita federal contribution for 1977-78 multiplied by the provinces' population and escalated by a three year moving average in the rate of growth of nominal per capita GNP (that is, the same escalator as in the EPF Act). Some provinces would gain or lose from such a formula. In order to phase the changes gradually, Bill C-55 allowed for levelling payments over a ten year period. As with CAP, residency requirements could not be a condition of eligibility. The Act also provided for a $10 million sum for five years to support capital expenditures by the provinces for facilities for disabled persons. The federal government offered to pay 50 percent of the capital cost of projects approved by the Minister of National Health and Welfare.

The Social Services Act would have given the provinces a greater degree of autonomy in allocating resources for social services, than a 50-

50 cost-sharing agreement. The federal government would, through a closed-ended block funding arrangement, gain more control and predictability for such services. Some of the less well-off provinces (especially Nova Scotia) would have gained under the proposed equal per capita transfer. Under CAP, provinces which can afford to spend more on social services receive more federal support.

It is interesting to note that the Parliamentary Task Force on Federal-Provincial Fiscal Arrangements, chaired by Herb Breau, approved of the federal government's decision not to enact Bill C-55. Arguing that "the Parliament of Canada has a constitutional responsibility for programs of income distribution, including social assistance programs paying money to Canadians anywhere in Canada" (Breau Report, 1981, 143). Thus, rather than block-funding such services, the existing cost-sharing system of CAP should be retained, so as to "allow the federal government to assist new provincial initiatives... or permit the federal government itself to provide leadership in new initiatives" (Breau Report, 1981, 154). The Task Force seemed to have overlooked that Bill C-55 did not include basic income maintenance programs such as welfare. These were to remain part of a cost-shared CAP. It also recommended that "there be no reductions in the overall fiscal commitment for programs now cost-shared by the Canada Assistance Plan" (Breau Report, 1981, 154). Yet only two years later, CAP was subjected to the fiscal restraint program called "6+5".

The umbrella, flexible nature of the Canada Assistance Plan is taking on a new and particular relevance in light of S106A of the Meech Lake Accord. In many ways the Section S106A on shared-cost programs in the

Accord appears to be entrenching some of the basic properties of the CAP. According to Banting (1988, 170) "the Accord would nudge new initiatives towards the model of the Canada Assistance Plan, with a general umbrella agreement containing relatively few conditions and broad flexibility to accommodate provincial preferences". In other words, the Canada Assistance Plan is a prototype of future shared cost programs under the Meech Lake Accord. This matter will be discussed further in a later section on the implications of the Meech Lake Accord on fiscal federalism.

The Vocational Rehabilitation of Disabled Persons (VRDP)

The CAP Directorate of Health and Welfare Canada also administers the VRDP program. The VRDP Act of 1960-61 requires the federal government to pay for 50 percent of the costs incurred by each province (except Quebec) in providing a comprehensive program for the vocational rehabilitation of physically and mentally disabled persons, including assessment, counselling, restorative services, provision of prostheses, wheelchairs, technical aids and devices, vocational training and employment placement; provision of books, tools and equipment, and maintenance allowances. These services may be provided directly by the province or through provincially supported voluntary agencies. Under the VRDP program, the federal govenrment also shares in the salaries, travel and the training of staff whose duties are directly related to the VRDP program and provincially supported research projects aimed at improving the operation of hte VRDP program.

While Quebec does not participate in the VRDP program, most of such costs is shared by the federal government under the CAP. As shown in the Table 3.4 below the situation may be standardized soon. It shows federal contributions to each of the provinces for the year 1987-88.

Table 3.4

Payments to Provinces and Territories under the Vocational Rehabilitation of Disabled Persons Act

Province*/Territory	1987-88 Estimates ($000)
Newfoundland	1,800
Prince Edward Island	288
Nova Scotia	3,200
New Brunswick	4,470
Ontario	34,697
Quebec*	8,000
Manitoba	6,150
Saskatchewan	4,300
Alberta	15,159
British Columbia	15,500
Northwest Territories	412
Yukon	1,024
Total	95,000

* Quebec's anticipated signing of an agreement under the Vocational Rehabilitation of Disabled Persons Act.

Note: These amounts reflect the payments made to the provinces for claims submitted during the fiscal year and may include costs incurred in previous years.

Source: Federal-Provincial Relations Office, Federal-Provincial Programs and Activities: A Descriptive Inventory, 1988.

FEDERAL FISCAL EQUALIZATION PAYMENTS

Equalization payments are unconditional grants from the federal to provincial governments with below average tax revenue capacity. The essential purpose of equalization payments is to ensure that citizens in all provinces of Canada have access to a "reasonable level" of public services without the province imposing unduly high levels of taxation. Currently, these payments are made under the authority of the Federal-Provincial Fiscal Arrangements and Established Programs Financing Act of 1977 and the successive modification of this Act since then.

Unconditional federal payments to provinces with lesser fiscal capacities go back to the earliest days of confederation (Moore et al., 1966; Perry, 1955). However, the current equalization payments have a more recent history and date back to the federal-provincial fiscal arrangements for the 1967-72 period. At that time major amendments were made to the arrangements of 1957 when the federal and provincial government first negotiated a formal revenue-equalizing grant from the federal government to those provinces with a less than acceptable tax revenue base. The 1957 equalization formula was based on just these "standard taxes". Equalization payments were based on the capacity of the provinces to raise revenue from the personal income tax, corporate income tax, and succession duties. The standard of equalization was the per capita yield of these taxes in the top two provinces. In 1957, all provinces except Ontario qualified. Before then the federal government transferred equalization payments implicitly via the 1947 and 1952 Tax Rental Agreements, by gearing the rental payments to

population and growth of the gross national product (Boadway, 1980, 10). In 1967, the earlier regime was replaced by a broader system that used the concept of the "representative tax system" (to be explained shortly), and at the same time, the quantum of equalization payments was increased sharply.

A formal equalization payments program was strongly urged by the Rowell-Sirois Commission. It recommended a system of "National Adjustments Grants" (Rowell-Sirois, 1940, Book II, pp. 125-130) which were to have several elements. The most important was the principle of unconditionality in that provinces were to remain free to tax as they wished and to allocate the revenues from these equalization payments on provincially determined priorities. In the Commission's view it was essential to preserve provincial autonomy.

There were always strong underlying political forces making for some sort of equalization transfers in Canada. There was the need and the desire to reduce inter-regional disparities in personal incomes and general levels of economic welfare, much of it caused by or related to the location of natural resources, industrial and commercial activities or concentrations of persons who earn high incomes. But more importantly, equalization payments were thought to be necessary in order to support the autonomy of all provinces. In its absence, federal subsidies to poorer provinces or the expansion of federal activities to provide public services itself, would necessarily reduce the freedom of action and autonomy of all provinces. Richer provinces have not been hostile to equalization payments and justified such payments as a protector and guarantor of provincial

autonomy. In 1960, Jean Lesage, strongly supported federal equalization payments in the following way (Lewis, 1979, 70):

> "For many provinces, the unconditional equalization payments are an essential safeguard of their financial and legislative autonomy. Without these payments, these provinces would have no other choice but to request the federal government to assume responsibilities that are rightfully theirs, and this would inevitably lead us to an unacceptable centralization".

Equalization payments have thus always been considered as one essential element of fiscal federalism, designed to reduce regional disparities and support economic growth across Canada. Its strongest political rationale is to support the autonomy of provincial governments. The Task Force on Federal-Provincial Fiscal Arrangements strongly endorsed the existing equalization system in 1981 (Breau Report, 1981) even though it recognized that unconditional federal payments violate the principle of accountability. They were thus considered to have become a well-entrenched part of the unwritten Canadian Constitution.

Indeed, the provisions of the Constitution Act, 1982, gives explicit recognition to the principle of equalization payments. Section 36 of the Constitution Act, 1982, commits Parliament and the legislatures to promote equal opportunities, to further economic development, to reduce disparities, and to provide essential public services of reasonable quality to all Canadians. (Part I of the Constitution Act, 1982, is the Canadian Charter of Rights and Freedom). Moreover, S.36 of the Constitution Act, 1982, commits the federal government to make "equalization payments to ensure that provincial governments have sufficient revenues to provide reasonably comparable levels of public services at reasonably comparable levels of taxation", subject to the provision that this has to be done

"without altering the legislative authority of Parliament and the provincial legislatures".

The exact details of the equalization formula used over the past two decades is not of particular relevance to the present report on fiscal federalism. The basic nature of the formula has not changed significantly over the years. Over the years, several modifications have been made to the program. The revenues considered under the equalization formula have become more comprehensive with time. Between 1974 and 1980 several ad hoc adjustments were made to the amounts of natural resources revenues (oil and gas) that could be used in the equalization formula in order to constrain the growth in federal equalization payments. In 1981, legislation was passed to effectively prevent Ontario from receiving any equalization transfer (the so-called "Ontario Rider"). An explanation of the current arrangements and legislation will thus suffice for our purposes.

In March 1982, the federal government passed Bill C-97 which amends a number of key sections of the Federal-Provincial Fiscal Arrangements and Established Programs Financing Act, 1977. (It is noted, parenthetically, that as equalization payments is solely a federal matter governed by federal legislation, no provincial agreement is necessary for changes. There were nevertheless numerous, and on the whole, highly contentious and difficult negotiations between the federal and provincial governments (Perry, 1983) for a period of almost 2 years before Bill C-97 was enacted). The Bill changes the list of revenue sources to be equalized from 29 (the number used in 1977-1982 period) to 33 revenue sources. The formula for calculating equalization payments was also changed to reflect the new

definition of the "representative average" standard contained in Bill C-97. The essential calculation is as follows. The first step involves the calculation of the per capita yield for one specific revenue source for a province by applying the national average tax rate to that province's tax base and then divided by its population. Second, the equalization payment to that province for that specific revenue source is calculated by subtracting the province's per capita yield (as calculated in step one) from the average per capita yield of that same revenue source for five provinces (British Columbia, Manitoba, Ontario, Quebec and Saskatchewan). Third, the per capita shortfall or excess for all 33 revenue sources are added together. If a province has a net per capita deficiency, that deficiency is multiplied by the province's population to produce its equalization entitlement. Provinces that have a net per capita excess of revenues do not receive any federal fiscal equalization payments, nor do they have to pay any special revenues to other governments because of the excess. The thus desired equalization entitlement is only paid to a province if it has personal income per capita below the Canadian average. This measure was introduced in the equalization formula in 1981 and was designed to exclude Ontario from receiving any equalization payments. (It affects no province other than Ontario). It was introduced to protect the federal government at a time of expenditure restraint. Ontario had, since 1979, become a "have-not" province according to the measure of fiscal capacity employed in the "representative tax system". Ontario has not challenged the override that precludes it from receiving federal equalization payments, though the Breau Commission was to declare the

measure to be "arbitrary and unwarranted" and recommended that "negotiations be addressed toward an equalization formula that can apply uniformly to all provinces, without arbitrary or discriminatory special provisions" (Breau Report, 1981, 169). This recommendation was not acted upon by the federal government.

Bill C-97 also sets minimum and maximum equalization payments and provides for transitional payments. The minimum payment for a recipient province is 95 percent of the previous year's payments if the province's per capita revenue is 70 percent or less of the national average, 90 percent if the per capita revenue is 70 to 75 percent of the national average; and 85 percent if the capita revenue is over 75 percent of the national average. This is noteworthy because this provision protects Newfoundland and Nova Scotia from a sudden decrease in equalization should their offshore oil and gas produce significant provincial revenues. Another minimum is also defined in Bill C-97 and was designed to protect Manitoba and Quebec (Perry, 1983, 36).

The maximum equalization payment is given by the limit on total federal equalization payments, which are not allowed to rise in any one year over the previous year by a figure greater than the increase in the gross national product. Recipient provinces would all have their entitlements reduced accordingly (if the growth in aggregate equalization payments exceeds the growth in the GNP). According to Parizeau, then Finance Minister of the Province of Quebec, the combined effects of the amendments favoured the four Maritime provinces, with Nova Scotia estimated to receive $2,261.5 million under the new Act as opposed to $2,091.3 under

the previous Act (1977) for a gain of 8.5 percent (Perry, 1983, 39).

While the basic idea behind federal equalization payments is, in terms of its politics and economics, relatively uncontroversial, there are concerns about its operation and design. These are technical matters and are the subject of several examinations of the federal equalization payments in Canada (Courchene, 1979; Economic Council of Canada, 1982; Boadway, 1980).

It has been pointed out that the equalization formula offers an incentive to provinces to change their tax structure in such a way as to maximize their equalization entitlements (Courchene, 1983, Boadway, 1980). Ceteris paribus. provinces will tend to increase revenues on tax sources for which they are classified as "poor" provinces. There are also disincentive on recipient provinces to raise revenues from certain tax sources for which it has a substantial share of the national tax base relative to its share of the national population (for example, forestry revenues in New Brunswick) for fear of losing equalization payments.

Yet another problem with the formula for equalization payments is that since the national average tax is computed from taxes actually levied by each province, a rise in the tax rate by any one province will cause the equalization entitlements to rise in all provinces. Usually this effect will tend to be small but there are some sizeable and serious exceptions, especially in the case of a revenue source which is large and unevenly distributed. The best example of this problem is the change in Alberta's oil and gas revenues from either an increase in tax rate or an increase in the tax base. An increase in such revenues by Alberta will increase

equalization entitlements to almost all other provinces. This also causes a related problem, one of inequities in the burden of financing equalization payments. As equalization payments are financed by the federal government, and since the federal government's share of any additional oil and gas revenues is small, the increase in equalization entitlements caused by Alberta's higher oil and gas revenues will have to be financed by federal revenues from other tax sources. The root problem stems from the fact that the program requires the federal government to equalize tax bases that are not under its control. Put another way, the program is intended to remedy differences in provincial fiscal capacities but must be financed by federal government revenues. The incidence of federal government taxation differs markedly from the tax capacities and revenue structures of the provinces. As the Economic Council of Canada (1982, 21) put it: "equalization payments are financed by resident federal taxpayers in all provinces in a manner that bears no direct relationship to provincial revenue capacity itself". Oil and gas revenues were included in the equalization formula since 1967-68 and has since given rise to very large and growing entitlements under the program. As a consequence, a large proportion of the aggregate equalization payments have been paid in respect to the kind of revenues not levied by all provinces, and which bear very little relationship to the cost or the provision of public services among provinces. A $1 billion aggregate equalization entitlement arising from differences in provincial oil and gas revenues results in a burden of $400 million to Ontario and just $130 million to Alberta, or 40% and 13% respectively, these being rough estimates of federal taxes collected in these two provinces. This

inequity in the tax burdens for the revenue-raising decisions of Alberta or Saskatchewan or British Columbia, in the case of oil and gas taxation and royalties, is further compounded by the 'Ontario Rider' which excludes Ontario from becoming a recipient of equalization payments.

There are also questions about the definition of certain tax bases, especially natural resources. It has been argued that what should be eligible for equalization is net and not gross royalties or an arbitrary fraction of gross royalties. Some tax bases are denominated in dollar values, others in terms of volume of output.

A more germane problem with the equalization formula is that it takes no account of the relative costs of providing public services nor the differential needs for services across provinces. Also, no account is taken of an individual province's tax rate or tax effort relative to those in other provinces in determining its equalization entitlements (except, of course, in calculating the national average tax rate). Over the years, there were complaints that some important revenue sources were excluded from the equalization formula, the most notable being, municipal revenues from property taxes. The Breau Report noted that were property taxes to be included in the equalization formula, Nova Scotia, P.E.I., Newfoundland, New Brunswick and Quebec would be entitled to significant additional sums of equalization payments (Breau Report, 1981, 163). This recommendation was indeed implemented. Since 1982, provincial and local government property taxes, including grants in lieu of such taxes from the federal and provincial governments, were included in the equalization formula.

There is also, of course, the problem of the level of equalization that should be the aim of the program. Is the present level of equalization optimal, too much or too little? The formula was open-ended before the 1982-1987 period, and has now being constrained by the rate of growth in the GNP. In effect we now have more or less fixed funding, with the formula serving as a means of determining the distribution of that sum. However, is the distribution of the equalization payments equitable? The rationale for equalization payments is to enable "have-not" provinces to provide "reasonable levels of public services". The index of provincial fiscal capacity for all revenues from own sources or from own sources plus fiscal equalization transfers to Ontario is certainly below the national average and thus makes a case against the equity of the program. As well, as early as 1980, several provinces which are recipients of equalization payments had higher per capita levels of government expenditures than Ontario (Economic Council of Canada, 1982). By 1984, Ontario had the lowest per capita revenue in Canada.

Despite the concerns and problems with the federal equalization payments expressed above, it has generally been favourably evaluated, particularly from the point of view of the Atlantic provinces and poorer provinces generally. Federal equalization payments is the most significant vehicle for correcting the vertical fiscal imbalance mentioned earlier and redistributing fiscal resources to attain interprovincial fiscal equity in Canada as was shown in section one of this report. Its size, and fiscal and political importance, has increased dramatically over time. Aggregate payments for the most recent fiscal year is almost $7 billion. As shown in

Table 4.1 seven provinces now receive transfers under the program. Total payments have risen from about 0.4 percent of GNP in the late 1950s to over 1.2 per cent in the 1980s. It has, as was mentioned earlier, become part of the Canadian Constitution.

While there are some fiscal inequities resulting from the program as was argued above, the program is particularly equitable from the perspective of the Atlantic provinces. Equalization payments redistribute much more funds to the "have-not" provinces than would the same amounts of transfers under EPF. In fact, federal equalization payments are by far themost important program in reducing the inter-provincial disparities in fiscal capacity. To illustrate for the fiscal year 1984-85 for Nova Scotia, the per capita own-source revenues is about 71 percent of the average of all provinces' per capita own-source revenues. (This is shown in Table 1.3 in the first section of the report). Equalization payments raises this figure to 88 percent (i.e. Nova Scotia's per capita own-source revenue plus equalization payments as a percent of the average of all provinces own-source revenues plus equalization payments). Adding all other federal-provincial transfers raises this later figure (i.e. 89 percent) to about 92 percent (i.e. an additional 3 percent only). The reason for these figures is obvious. Equalization payments are only meant for provinces with fiscal capacity below the national average (except Ontario). Under EPF, all provinces receive the same per capita transfers from Ottawa, thus raising every province's post-transfer fiscal capacity. In absolute terms, the Atlantic provinces receive much more from the equalization payments than from the EPF program. This is shown in Table 4.2. The program has responded

Table 4.1

Federal Equalization Payments to the Provinces

Province	1987-88[1] ($'000)	1988-89[2] ($'000)
Newfoundland	792,766	843,967
Prince E. Island	156,254	172,456
Nova Scotia	721,628	782,984
New Brunswick	720,421	776,239
Quebec	3,184,218	3,298,671
Manitoba	608,467	635,390
Saskatchewan	258,479	288,256
Total	6,443,233	6,797,963
GNP	$ 533,085 million	-

Equalization as a % of GNP (1987-88) = 1.2%.

1 The equalization payment figures shown for 1987-88 are the fifth estimates made on October 7, 1988.

2 The figures for 1988-89 are only the second estimates.

Sources: Statistics Canada for GNP estimate. Provincial Fiscal Equalization 1988-89, Federal-Provincial Relations Division, Department of Finance, Ottawa.

Table 4.2

The Size of Federal Equalization Payment in Comparison to EPF Transfer* to Atlantic Provinces and Saskatchewan

	1987-88 ($ millions)	1988-89 ($ millions)
Newfoundland		
Equalization Payments	792.0	843.9
EPF transfers	390.7	409.4
P.E.I.		
Equalization Payments	157.0	172.4
EPF transfers	87.3	92.8
Nova Scotia		
Equalization Payments	721.0	783.0
EPF transfers	601.9	636.9
New Brunswick		
Equalization Payments	720.0	776.2
EPF transfers	490.0	514.8
Saskatchewan		
Equalization Payments	258	288.2
EPF transfers	697.5	728.9

Source: Provincial Fiscal Equalization, and Established Programs Financing annual reports from the Federal Provincial Relations Division, Department of Finance.

* Includes tax and cash transfers.

automatically and sensitively to changes in the fiscal needs of poorer provinces. It is also successful if it is judged - as it ought to be- according to its stated aims of encouraging the provision of a reasonably standard level of public services across Canada. As can be seen in Table 4.3, the per capita revenues (including all fiscal transfers) of the poorer province is not markedly different from the national average and indeed after federal transfers it is in fact higher than that for Ontario. The success of the equalization payments in bringing about greater equity in inter-provincial fiscal capacity is paramount, widely acknowledged and supported.

Despite these successes, the underlying purpose of the program has been called into question. It has been argued that it creates "dependent" provinces and that the program has adverse effects on the efficiency with which capital and especially labour is allocated in our economy (Courchene,1979). It has been suggested that instead of redistributing fiscal resources to provincial governments, the program should be replaced by transfers to individuals through transfer programs such as a form of guaranteed annual income.

These arguments and suggestions have been assessed by several analysts and found wanting. The Economic Council of Canada, as was suggested earlier, argued that "an equalization program is essential to the efficient functioning of the economy" (Economic Council of Canada, 1982, 120). As well, taxable incomes of persons do not always provide an accurate picture of real incomes of persons living in different provinces. Government expenditure policies and programs give rise to real income differences in

Table 4.3

Government Revenue Per Capita of the Provinces* (1984)

Province	Own-source* Revenue ($0005)	Gross Revenue including transfers	Per Capita (own-source)	Per Capita (gross revenue)
Newfoundland	1,094,483	2,075,160	1,912.1	3,625.4
P.E. Island	244,657	458,086	1,955.7	3,661.7
Nova Scotia	1,637,460	2,809,757	1,894.3	3,250.5
New Brunswick	1,441,313	2,501,823	2,036.0	3,534.1
Quebec	21,281,006	27,576,088	3,278.0	4,247.7
Ontario	22,202,797	26,666,993	2,494.2	2,995.7
Manitoba	2,635,192	3,747,181	2,497.6	3,537.0
Saskatchewan	3,011,981	3,731,923	3,010.5	3,730.0
Alberta	12,938,240	14,534,373	5,532.7	6,215.3
B. Columbia	8,375,140	10,122,022	2,941.0	3,554.4
Total	74,862,269	94,223,405	3,005.9	3,783.3

Source: Statistics Canada (1988), Provincial Government Finance: Revenue and Expenditure 1984. Catalogue 68-207 Annual.

* Line 59 on pages 4 and 5 shows gross provincial general revenues from own-sources and includes 58 categories of such revenue-sources, to which transfers from local governments to the provinces has been added (line 101) to establish the figures shown in this table.

the form of net fiscal benefits that are not reflected in the taxable incomes of individuals. Provinces with a higher than average per capita incomes can provide a given level of public services with a lower tax effort than provinces with much lower per capita incomes. Differences in natural resources endowments can similarly lead to much higher fiscal benefits to persons in resource-rich provinces at relatively low levels of taxation of personal incomes. Thus even inter-personal equity requires an additional fiscal transfer mechanism to deal with differences in net fiscal benefits deriving from provincial government activities. These observations add weight to the legitimacy and the necessity of the federal equalization payments program.

FISCAL ARRANGEMENTS FOR POST-SECONDARY EDUCATION AND OTHER PROGRAMS

While provinces have constitutional jurisdiction in the field of education (Section 93, Constitution of Canada, 1867) the Federal Government has a very long history of instituting conditional grants programs for post-secondary education in the fields of technical and vocational training, occupational training and university education. The federal interest in the three areas were interdependent, and policies and programs tended to reflect this. Primary and secondary schooling were left to the exclusive preserve of the provinces. The very first conditional grant in Canada related to education. The Agricultural Institution Act of 1913 provided federal funds to agricultural colleges, though no matching contributions from the provinces were required (Brown, 1984).

The passing of the Technical Education Act of 1919 was in essence the first significant shared-cost program in the post-secondary education field. It provided for matching grants to provinces, up to a limit of $10 million in total, for programs involving a vocational, technical and industrial training and education. Interestingly, only Ontario benefitted significantly from this program (Robinson, 1980, 32) using up its allotted funds by 1929, that is the first ten years for which this Act was initially operative. The federal government thus extended the program twice for a period of five years each so that other provinces could use up their quotas as well. Maxwell (1937, 244) observed that such grants favoured the richer provinces and also induced all provinces to engage in schemes beyond their fiscal strength.

In 1937, the Unemployment and Agricultural Assistance Act supported the training of unemployed persons between the ages of 18 and 30. It provided for 50 percent matching grants to provinces for 2 years. In 1939 it was replaced by the Youth Training Act until 1942, which in turn was replaced by Vocational Training Coordination Act. This Act provided for several conditional grants to provinces in such areas vocational school assistance, apprenticeship programs, youth training plans and student aid. The terms varied from program to program but most specified some cost-sharing requirements and all programs had a limit on the total federal contributions.

This Act was expanded in 1962 with the passing of the Technical and Vocational Training Assistance Act consisting of two basic agreements: the Technical and Vocational Training Agreement (TVTA) and the Apprenticeship Training Agreement. The first involved a capital expenditure program and 10 programs involving operating expenditures, with federal contribution of 50 percent of authorized expenditures. The TVTA Act was to be terminated in 1967 at which time it was replaced by the Adult Occupational Training Act (AOTA). The federal government also agreed to a phase-out period, under which existing and planned capital projects begun under the TVTA Act would be funded under the original terms until they were completed. With the AOTA 1967, the federal government look over completely the financing of adult occupational training (except in Alberta where on-the-job training was equally shared between Ottawa and Alberta). The Canada Manpower Training Program Finances both on-the-job training and institutional and technical schools offering industry-based occupational training. The costs

covered are comprehensive and include a proportion of the trainees' wages. However, institutional training programs must be offered at provincial and municipal training institutions and the provinces must approve all training plans. In effect, while the federal government had assumed the full financial responsibility and control of the adult occupational training, provinces could still define the kinds of training programs that would be offered in most jurisdictions.

Federal involvement in university education started with the passing of the Veterans' Rehabilitation Act in 1945. It provided for bursaries for veterans to attend university at little or no cost to themselves. It also provided direct grants to universities of $150 each year for each student veteran. These grants contributed substantially to university finances and the Massey Commission established in 1949, recommended its continuation in its report of 1951, with the exception that the grants be based on provincial populations rather than the number of veterans attending universities (Brown, 1984).

In 1951, the federal government offered under its Appropriations Act over $7 million in grants to universities. This amounted to $0.50 per capita, a sum which continued until 1957, and which time it was raised to $1.00 per capita, followed by $1.50 per capita in 1958, $2.00 in 1962 and $5.00 in 1966. This figure lasted just one year with the grant system ending in 1966-67. The grant system was terminated mainly because Quebec objected to the federal government giving funds directly to universities. Quebec universities accepted the federal grants for just one year, refusing them afterwards under threat of losing funding from the government of

Quebec. The problem was partially resolved in 1960 when Ottawa amended the Appropriations Act to allow the payments of these grants to provincial governments, who would in turn pass on the sums to the universities. Quebec also received all of the federal funds held in trust for Quebec universities for the period 1952 to 1960. However, many Quebec politicians felt that the channelling of federal grants through the provincial government to universities amounted to mere window dressing. This situation led the federal government to give up this direct support to universities in 1967.

In 1967, the federal grants to universities was replaced with payments for post-secondary education to the provincial governments under a new federal-provincial cost-sharing arrangement. Provinces were given 4 equalized percentage points of the personal income tax plus one equalized percentage point of corporate income tax. These tax abatements were to be supplemented by a cash adjustment payment so that a province is assured of a total payment (i.e. tax abatements plus cash) amounting to 50 percent of the post-secondary education operating expenditures. A province had the option of accepting the cash adjustment payment or $15 per capita whichever was greater and which was to be escalated by the national rate of growth of post-secondary operating expenditures. Prince Edward Island, Newfoundland and New Brunswick accepted the $15 per capita option. The new cost-sharing financing arrangement became operational in 1967-68 and remained until 1977, that is, the introduction of the Established Program Financing Act. (This Act was discussed in an earlier section). It should be noted that unlike HIDSA (1957) and the Medical Care Act (1966), in which the cost-

sharing formula made reference to the national per capita costs, the cost-sharing formula for post-secondary education uses only provincial expenditures for determining the federal contribution. Put another way, the federal transfer is determined entirely by each province's spending decisions, and hence this formula is more likely to lead to wide variations in the per capita transfers to provinces. This, in fact, is what happened.

The evolution of federal financing of post-secondary education thus can be seen to consist of three phases. From 1946 to 1967, the federal government defined how much it was prepared to pay universities and other post-secondary institutions, by-passed provincial governments and paid the grants directly to universities (noting the exception for Quebec as explained above). From 1967 to 1977, it turned the control of the payments over to the provincial governments under a 50 percent cost-sharing formula made up of tax abatements and cash adjustment payments. The "50 cent" dollars offered substantial inducements to provinces to expand post-secondary education during this period. With EPF in 1977, the block funding arrangements gives the federal government no influence over the level of post-secondary expenditures of the provinces. Since 1977, the changes in the federal financing of post-secondary education was always made in the context of changes to EPF, and these were mentioned earlier in the section on EPF. There was one notable exception; in 1983, the federal government applied a lower-growth rate to the contribution to post-secondary education than to health services for the years 1983-84 and 1984-85 under the financial restraint program known as "6 and 5". This meant that the escalator contained in the EPF Act of 1977 was suspended for these

two fiscal years as far as federal transfers to provinces for the post-secondary education was concerned. This can be seen in Table 5.1. The escalator for 1983-84 should have been 9.12 percent (instead of 6.00) and for 1984-85 it should have been 8.17 percent (instead of 5.00). This arbitrary constraint in the escalator cost the provincial governments more than $370 million in reduced federal transfer under EPF in these two years alone.

There is little doubt that the federal government played a major role in the financing of post-secondary education in Canada. It is important to note that its role was limited to financing and not to training or educational standards, in contrast to its role and design of the cost shared programs in the field of health services. There was an immense increase in the size of the educational complex at the post-secondary level during the pre-EPF grants and cost-sharing agreements. With the enactment of EPF, the amount of expenditure on post-secondary institutions declined relative to other public programs raising the controversial issue of whether there was a causal relationship between the two.

Many briefs submitted to the Parliamentary Task Force on Federal-Provincial Fiscal Arrangements asserted that there was a serious underfunding of post-secondary education in most parts of Canada and that the abandonment of the cost-shared arrangement in favour of block-funding had contributed to this situation; and that since EPF was introduced, post-secondary educational expenditures grew at a slower rate than federal transfers for this sector. Indeed in most province except Quebec, the total federal transfer for post-secondary education exceeded provinces

Table 5.1

The Escalator and Per Capita Transfer for Post-Secondary Education under EPF

	Escalator Percent	Federal Transfer $ per capita[1]
1975-76	--	68.31
1976-77	14.85	78.45
1977-78	14.04	89.47
1978-79	11.00	99.31
1979-80	10.41	109.65
1980-81	10.24	120.87
1981-82	11.08	134.27
1982-83	12.21	150.66
1983-84[2]	6.00	159.70
1984-85	5.00	167.69
1985-86	6.84	179.15
1986-87[3]	5.84	189.61
1987-88	4.72	198.56
1988-89	4.41	207.31

[1] Includes cash and tax components.

[2] For post-secondary education the rate of increase in 1983-84 and 1984-85 was limited to 6.00 and 5.00 respectively under the so-called "6 and 5" fiscal restraint policy.

[3] Since 1986-87, the value of the escalator was reduced by 2 percentage points as a consequence of the federal Bill C-96.

Source: Annual Reports on Established Programs Financing by the Federal-Provincial Relations Division, Department of Finance, Ottawa.

own-source support of the sector. While in general these claims seemed justified there are massive interprovincial difference that must be noted. Thus, compared to the year before EPF (1976-77) real post-secondary education expenditures per student were lower in 1980-81 about 2.5 percent, giving some support to the thesis above. But such expenditures decreased in the three provinces of Ontario, Newfoundland and Manitoba, and increased in British Columbia, Nova Scotia, New Brunswick, Alberta and Saskatchewan (Economic Council of Canada, 1982, 57). That is, the alleged spending cuts for post-secondary education nationally was moderate, and mainly accounted for by Ontario "where spending per full-time equivalent student in 1980-81 was nearly 12 percent below the 1976-77 level" (Economic Council of Canada, 1982, 58). Furthermore, student fees as a proportion of total operating costs continued to decline in all provinces suggesting that financial barriers to post-secondary education did not increase since the inception of EPF.

The Task Force also stated that "it is clear that in most provinces, the value of the EPF transfer - whether measured in cash or as a total of cash and EPF tax point value - has grown faster than provincial support for higher education in recent years... no matter which measure is used, there is no doubt that federal action over the years, in one way or another, has underwritten provincial financing of higher education to a remarkable degree." (Breau Report, 1981, 132). For Nova Scotia this conclusion is quite applicable as can seen from Table 5.2.

The Task Force naturally concluded that "current federal support in this area is certainly adequate" (1981, 132). However, it did not draw any

Table 5.2

Federal Share of Funding of Post-Secondary Education Operating Costs

	1967-68	1976-77	1977-78	1980-81	1981-82
	(in thousands of dollars - current)				
1. Cash less Revenue Guarantee	11,751	31,669	52,945	71,218	88,458
2. Cash and Tax Abatements less Revenue Guarantee	20,023	68,440	84,281	113,344	135,943
3. Total PSE operating costs	33,446	102,496	118,325	164,319	176,074
4. [1] as % of [3]	35.1	30.8	44.7	43.3	50.2
5. [2] as % of [3]	59.8	66.7	71.2	68.9	77.0

Source: Fiscal Federalism in Canada, Parliamentary Task Force on Federal-Provincial Fiscal Arrangements, 1981.

cause-and-effect relationship between EPF and the falling provincial shares of post-secondary expenditures, nor did it wish to see a return of the cost-sharing arrangements. On the contrary, it concluded that "the provision of federal post-secondary assistance through 'block-funding' along the lines of the present arrangement has widespread support on the part of both governments and representatives of the academic community. Wealso believe that this method of providing general support to the provinces best accords with the primary responsibility of the provinces for education" (Breau Report, 1981, 133-34). It did, however, also recommend that "federal general support for higher education... be established as a program separate from future support for health programs" (Breau Report, 1981, 134).

It is apparent that the sanctity of education as a provincial matter, especially for Quebec, weighed heavily in the Task Force's evaluation. After all, the Task Force made a persuasive case for a federal role in this sector and justifies a 'national interest' on both socio-cultural and economic grounds. The standard arguments for a federal role include the notion that education as a "merit good" and therefore its consumption should not be constrained by the ability to pay (i.e. government subsidies are legitimate). Secondly, education exhibits considerable externalities and the benefits of education extend beyond provincial and regional boundaries. This is obvious when highly educated persons move from one province to another. It is also true in the case of research. The Task Force, also curiously, pointed out that the growing federal commitment in this sector was not accompanied by a concomitant degree of policy or

program influence. Despite these observations it did not call for the development of federal conditions in contrast to its recommendations vis-à-vis health services. It did, however, call for a more effective consultative mechanism and for discussions of matters of concern to both orders of government in the field of higher education.

Finally, one additional effect of the block-funding of post-secondary education should be noted. Under the cost-sharing arrangements the level of transfer to the provinces in 1976-77 varied greatly ranging from just $44 per capita for Newfoundland to a high of $85 per capita for Quebec. EPF brought about a high degree of equity in Federal transfers by 1979-80 and indeed by 1982-83 the Federal transfers were equal on a per capita basis. This can be seen from Table 5.3.

Other federal transfers

There are now, and were over the years, a vast number of other types of conditional transfers operated through virtually every department of the federal government. A comprehensive survey of these is published in an annual volume entitled "Federal-Provincial Programs and Activities" by the federal-provincial relations office of the federal department of finance. The conditional grants are typically closed-ended, and negotiated on a project-by-project basis. Quite a number of them involve matching contribution from provinces, and the rate is frequently 50 percent. They are typically intended for fairly specific purposes. There are a few in the health area but there are more in the areas of agriculture, transportation, parks, and mineral development programs. In Table 5.4 the

aggregate federal transfers to each of the provinces and territories for the fiscal year 1987-88 is shown. It can be seen that there are federal transfers for health purposes over and above those covered by the Established Programs Financing Act and the Canada Assistance Plan.

Table 5.3

EPF Cash and Tax Transfers Per Capita for Post-Secondary Education

	1977-78	1978-79	1979-80	1980-81	1981-82	1982-83*
Nfld	80.12	94.06	109.24	121.02	134.42	150.66
P.E.I.	76.87	92.27	109.24	121.02	134.42	150.66
NS	83.46	95.91	109.24	121.02	134.42	150.66
NB	80.50	94.27	109.24	121.02	134.42	150.66
Que	89.04	98.84	109.24	121.02	134.42	150.66
Ont	85.65	97.15	109.24	121.02	134.42	150.66
Man	85.70	97.15	109.24	121.02	134.42	150.66
Sask	82.47	95.37	109.24	121.02	134.42	150.66
Alta	86.81	100.02	115.21	133.02	150.69	150.66
B.C.	80.92	94.54	109.24	122.72	134.87	150.66
NWT	86.92	97.55	109.24	121.02	134.43	150.66
Yukon	91.37	104.70	117.95	134.04	146.16	150.66
Can.	85.62	97.27	109.76	122.29	135.98	150.66

Source: Annual reports on Established Programs Financing by the Federal-Provincial Relations Division, Department of Finance, Ottawa.

* The per capita transfer to the provinces since 1982-83 are equal. The value of the per capita transfer for the years 1983-84 onwards is shown in Table 5.1

Table 5.4

Federal Transfers to the Provinces and Territories for Specific Purposes[1] for Fiscal Year 1987-88

	$(Million)	Per Capita ($)
Newfoundland	24.5	43.11
P.E. Island	5.9	46.34
Nova Scotia	28.2	32.09
New Brunswick	34.3	48.15
Quebec	235.0	35.65
Ontario	214.5	23.14
Manitoba	60.6	56.16
Saskatchewan	104.7	103.25
Alberta	113.8	47.81
B. Columbia	72.6	24.81
N.W.T.	35.1	688.23
Yukon	8.5	348.36
Total	937.7	36.59

[1] Includes Health and Welfare grants, official languages in education, services to young offenders, crop insurance, transportation, justice, and other specific purposes transfers.

FEDERAL DEFICITS, FREE TRADE AGREEMENT AND THE MEECH LAKE ACCORD: IMPLICATIONS FOR FISCAL FEDERALISM

The history of Canadian fiscal federalism and social policy illustrates that "the Constitution Act, 1867 has been a marvelously flexible document" (Courchene, 1988, 66). The centralization of revenues, specially in terms of personal and corporate income taxation during the war and immediate post-war period, and the vertical fiscal imbalance that became apparent, made possible a variety of conditional grants and national shared-cost programs in the areas of health, education and social welfare. In the fifties and sixties, the federal government ceded significant tax room to the provinces. This revenue sharing also continued in the seventies but only as a bargain for converting open-ended shared-cost programs to closed-ended block-funded transfers. The decentralization drift presaged by the EPF Act of 1977 - with the sole and notable exception of the Canada Health Act, 1984 - finds considerable resonance in section S106A on spending power in the Meech Lake Accord. The original BNA Act did not constraint the ability of Canadians to create new processes and structures when the need arose. Equalization payments, another key ingredient of fiscal federalism in Canada, also does not have BNA Act underpinnings, yet it had become so central to the Canadian federation that it became enshrined in the Constitution Act, 1982.

What are the implications of the Meech Lake Accord on fiscal federalism? This question has provoked a veritable outpouring of opinions and analysis, often raising more questions than answers. There are sharp differences in opinions about the likely effects of the Meech Lake Accord

on future social policy, and especially the fiscal federalism underpinning of social policy. There is even a difference of opinion on whether it will lead to greater decentralization or centralization in Canada. It has been suggested, for instance, that the Meech Lake Accord will not be as significant a factor in determining the extent of centralization or decentralization or the future course and nature of social policy in Canada than underlying economic forces, including the "deficit overhang at all levels of government in Canada which severely constrain the ability of governments to manoeuvre on any expenditure front, social policy included" (Courchene, 1988, 68). Another economic challenge may arise as a consequence of the Canada-U.S. Free Trade Agreement. It has been argued that this agreement will require Canadian industry to undergo considerable restructuring and become more flexible and competitive. Thus, Canada will have to ensure that "the incentives within the social policy network will encourage rather than inhibit the required adjustment on the economic front (Courchene, 1988, 68).

In this section we present an overview of the essential issues and concerns raised above. We look at what the federal deficits, free trade agreement and the Meech Lake Accord might mean for fiscal federalism, the existing health and social programs, and possible implications for future federal-provincial initiatives in the social policy area.

Federal Deficits and Revenue Sharing

There is no question that the federal government has had a serious deficit problem for most of the past decade. Indeed, despite an average

annual growth rate of 4% in the gross national product over the past four years, the federal government still accumulated deficits of $120 billion over the period. In 1986 and 1987, the federal deficit was in excess of $30 billion and $28 billion, respectively. The interest payment on the public debt alone in 1986 and 1987 was in excess of $26 billion and $29 billion respectively (Statistics Canada, 1989, Table 10.7, 5.92). The federal deficit and the requirements to finance the accumulated debt are large now and on plausible expenditure trends, will likely continue to be so for some time, perhaps even if the Canadian economy moves closer to levels of full employment. Whether the latter improvement in employment can be counted on is not certain and most forecasts do not appear to be optimistic about significant reductions in the unemployment rate in Canada. The near term outlook too foretells a slowing down of the economy. As well, the economic difficulties in the U.S.A. in the form of huge budget deficit and foreign trade deficits could have negative connotations for Canada over the short and medium term. The federal tax structure is not as elastic as before. This is especially true of the personal income tax since 1974 when most of tax exemptions and brackets were linked to the consumer price index.

It is widely expected that the current efforts to reform the tax system may well increase the aggregate levels of tax revenue to federal and provincial treasuries, but this remains to be seen. The shift to expenditure-based taxation will be controversial and it is difficult to predict the final outcome of the tax reform, let alone its revenue implications. In short, it is difficult to make the case that the federal

deficits are short-lived and temporary and that the fiscal situation will change dramatically in the near term.

If this is a reasonable expectation, then it seems likely that the federal government will not undertake many and/or costly initiatives in the social policy area. This is further buttressed by the fiscal difficulties faced by most, though not all, of the provinces. The Atlantic provinces certainly do not have the fiscal strength to want to initiate new social programs without substantial federal assistance. Federal and provincial efforts in the social policy area will focus more on rationalization of existing policies and programs and improving their efficiency and cost-effectiveness, rather than introducing new programs or expanding existing ones. This is not to suggest that no new programs will be attempted but only that the deficits will constrain their scope, coverage and levels of benefits. The current debates over a child care program at the provincial and federal level reflect this concern over affordability; and contrasts markedly with the debates that surrounded both the hospital insurance and physician services schemes at the time of their inception.

However, there is no doubt that governments will have to respond to certain socio-demographic imperatives facing Canada. One such imperative is the aging of the population and the (already evident) trend of the "greying" of the provincial and federal budgets (including tax-expenditures) will continue. An increasing proportion of the social policy expenditures will be devoted to the elderly. Another imperative, thus far underemphasized, if not neglected, is the feminization of poverty, particularly the increasing number of single-parent families headed by

women. This phenomenon calls for changes in the incentives embodied in our welfare and tax-transfer systems and possibly new initiatives in child care, job creation and manpower training. Indeed, there are a number of other challenges in the social policy field, and it is unrealistic to assume that we have already put in place all of the social policies we could possibly need or want. It is fortunately the case that the more universal and more expensive programs - such as medicare - already exist, and that policies and programs of that scope and magnitude is not hanging over our uncertain and currently lean fiscal positions. Thus, while both the provinces and the federal governments are experiencing fiscal deficits, this will not prohibit but will only inhibit new social policy initiatives.

In the late seventies and early eighties, the federal government argued that it was suffering from a "fiscal imbalance" or a "fiscal gap", and implicated its sizeable unconditional and shared-cost transfers to provinces as having contributed to this fiscal imbalance. Indeed, it threatened to reduce these transfers and openly expressed its intention to accomplish this in several announcements since 1978. As Perry (1983, 47) expressed it "for the first time in recent history, the federal government entered the quinquennial negotiations determined to reduce the rate of growth in transfers. Also for the first time, the federal government succeeded in ending one program (compensation for the revenue guarantee) without introducing another permanent program". Several other restraints and cutbacks to transfers followed the ones in 1982, as was mentioned earlier, including the "6 and 5" restraints introduced in 1983 and the 2 percentage points reduction in the EPF escalator in 1986.

Were the transfers the cause of the federal deficits and does the federal government face the alleged fiscal imbalance? These questions were addressed by both the Economic Council of Canada and the Parliamentary Task Force on Federal-Provincial Fiscal Arrangements, chaired by Herb Breau. The latter report pointed out that while the provinces collectively were in a surplus position (when the federal government was in a deficit position in the late seventies) "the surplus is attributable to the three western-most provinces, whose oil and gas revenues have increased considerably since 1973. The other seven provinces continue to incur significant deficits" (Breau Report, 1981, 33). Both reports pointed out that federal transfers to provinces expressed as a percentage of total federal spending were fairly constant since 1970. In fact, they grew at a slower rate in the 1970s than they did in the 1960s. Furthermore, the growth of these transfers were forecasted to decline over the future, not only in relation to GNP but also as a share of federal government expenditure (Breau Report, 1981).

The explanation behind the federal deficits "is more appropriately associated with declining federal revenues than increasing federal expenditures" (Economic Council of Canada, 1982, 8). This is explained by several factors including the general weakness of the economy and discretionary tax measures since 1972, the most notable of which was the indexation of the personal income tax. According to the Economic Council of Canada (1982, 8) "more than 60 percent of the federal deficit in the current year (1981-82) will be attributable to the fact that the economy is not operating as its full-employment potential". While such estimates are

not available for other years, it is likely that the same explanation more or less holds for the other deficit years of the seventies and the eighties. Canada has experienced high levels of unemployment for most of the eighties. Both reports and numerous other analyses disputed the "fiscal imbalance" hypothesis, at least, insofar as it can be thought of as a long term structural economic problem. Interestingly, both reports counciled against the federal government's intention to reduce its transfers to the provinces. The Task Force's conclusion was that "there does not exist a long-term, structural mismatch between the revenue capacities and expenditure responsibilities of the federal government. It cannot be claimed that the capacity of the federal government to raise revenues has reached a structural (as opposed to a political or discretionary) ceiling" (Breau Report, 1981, 33). By contrast, the historic fiscal gap of the provinces, especially those without sizeable natural resource revenue, does exist and is likely to continue, thus requiring fiscal federalism of the sort we have seen to date.

An alternative to federal transfers to correct the fiscal gap takes the form of more appropriate revenue sharing. Thus, instead of the current mix of federal transfer to the provinces, Petter (1988, 198) suggested that "what is needed is a more radical and comprehensive approach. Conditional transfers between governments should be constitutionally prohibited, and the tax room required to fund such transfers given over to the government with legislative jurisdiction. Moreover, federal and provincial governments should commit themselves to a joint initiative aimed at eliminating the use of other conditional grants, loans and tax expenditures for the promotion

of policies that fall outside their respective legislative jurisdictions". Petter, it should be noted, is only referring to 'conditional transfers' which includes most transfer except equalization payments (which is, of course, an unconditional transfer and one which is constitutionally required). Of course, anyone opposed to the federal government's role in assuring horizontal fiscal balance would also want to extend Petter's radical approach to cover equalization payments as well, and transfer even more tax room to the provinces. In effect, a province would receive only the revenue raised in its own jurisdiction, rather than having some of its revenues transferred to or received from other provinces. This is unrealistic, of course. No federation has attempted, let alone achieved, such a tax-revenue arrangement. It denies the need for both vertical and horizontal fiscal balance. Petter's suggestion is only somewhat less unrealistic. It overlooks the fact that the federal government attempts to redistribute fiscal resources through conditional grants as well as through the more direct and important means of equalization payments. It overlooks too the risk-sharing feature of current arrangements. That is, an economic decline in one province would jeopardize the continuation of some social programs were it solely responsible for it. There are, however, further shortcomings of such 'radical' proposals.

The federal government, by virtue of historical events, has controlled a large proportion of the tax fields shared by the federal and provincial governments since the end of the second world war. As was mentioned in the introductory section, the federal share in total government revenues has gradually diminished from a high of 71.4 percent in 1945 to about 51

percent by 1970 to about 45 percent currently. Provincial and local shares of total government revenues has been greater than the federal government's share since 1977 (Department of Finance, 1988). The decline is more marked when net revenues are considered. That is, when federal grants are deducted from federal revenues and considered as revenues of the provincial governments then the figures for the federal government's share drop from 69.2 percent in 1945 to 39.8 percent by 1970 and about 34 percent currently.

The Parliamentary Task Force on Federal-Provincial Fiscal Relations offered the following wisdom on the matter:

> "History teaches above all fiscal federalism in general, and revenue-sharing in particular, cannot be approached with fixed standards or a purely analytical eye. Tables depicting revenue shares are in fact describing the successive outcomes of a perpetual contest between political forces searching for the revenues vital to accomplishing their political goals for Canada. These contests certainly reflect economic determinants, but they also reflect distinct views of the country and its need at a given time - and they reflect the distinct personalities and accidents of history that shape the development of any nation" (Breau Report, 1982, 32).

By mid-sixties, as a result of pressures from the provincial governments, the federal government did in fact turn over a significant proportion of the tax fields at its command. The debates over the division of the tax take or more formally, revenue sharing, were always difficult and contentious. Will the trend revealed in the figures above continue?

The consensus opinion on the matter suggests that it won't. First, the major social programs are essentially completed. Secondly, all governments now appear to be attempting to constrain expenditures. Third, most tax fields are now more or less evenly shared by the federal and provincial levels of government. Of course, the federal government has exclusive jurisdiction over the tariff which in the world of freer trade will yield diminishing revenues; local governments have exclusive jurisdiction over the property tax and importantly, provincial governments can derive large revenues from royalties and exploration and development leases. Not surprisingly, as early as 1970 the federal government began slowing down giving over more tax room to the provinces. With the recent and current deficits, the reduced revenue elasticity of its taxes, and large financial requirements, the federal government is not likely to give further unconditional abatements or tax room to the provinces, except in circumstances where it would produce substantial political benefits or the restructuring of federal-provincial programs. Even here, there are limits. Cash payments for shared programs preserves for the federal government a presence, visibility and control that is lost with the unconditional transfer of tax points. (It might be noted that the Social Service Act (1978) did not involve the ceding of further tax room to the provinces). In short, the transfer of further tax room will be made most reluctantly even in bargaining over the reworking of existing jointly financed programs. Furthermore, the federal government could argue that it must maintain the current revenue sharing arrangement in order to carry out its

fiscal policy responsibilities. Further reductions may jeopardize its ability in this respect.

Revenue-sharing and the transfer of tax room to the provinces involve two additional difficulties that should be noted. One is that of tax competition between provinces. The other is the fragmentation of the current more or less uniform tax bases. The latter problem can be avoided if provinces undertake to use a common, agreed-upon tax bases. The former problem, however, is more difficult to resolve, owing to provinces' autonomy over tax rates and its structure. These complications are, however, less important than the other arguments against further revenue sharing presented above.

The Canada-U.S. Free Trade Agreement (CUSFTA)

The recently ratified free trade agreement between Canada and the United States was the dominant issue in the general election of November 1988. Both the opponents and advocates of the agreement claimed that it had profound ramifications for our economy, with proponents of the deal claiming significant long term gains in employment and income and the opponents claiming disastrous economic consequences. Advocates of the free trade agreement argued vociferously that it had no impact on our social policies and programs and that if anything it will strengthen and not merely preserve our political sovereignty. Those against the deal argued passionately that the exact opposite is likely to happen. The debates and discussion over the agreement was heated, controversial, emotional and divisive. Claims and counterclaims over virtually every aspect of the

agreement defied consensus, heightened uncertainty and begged further facts and answers to ever-growing concerns and questions. Even the media, particularly newspapers, took partisan positions on the matter. In the following pages we take a look-admittedly speculative and consisting of "educated guesses" than solid analysis - at the implications of the Canada-U.S. free trade agreement on fiscal federalism and social policies, particularly the health care system in Canada.

The government has steadfastly maintained that a free trade agreement with the U.S. will yield significant economic benefit to Canada. Many estimates of income gains and new jobs were bandied about, some more optimistic than others. If these estimates prove to be true then the fiscal federalism Canada has attained to date, will not only be maintained but could possibly be enriched. The economic ramifications of the agreement is subject to much speculation, and forecasts range from bleakly negative to neutral to rather rosy. The few econometric analyses to date suggest that the effects of agreement is not likely to be great in either direction and the consensus appears to be mildly positive over the forecast period of 1989 to 1998. The Economic Council of Canada's analysis illustrates the modest effects of the agreement with its most probable estimate of just 250,000 new jobs over ten years or only 25,000 jobs per year. We say "only" insofar as the Canadian economy generates many times that number of jobs annually. As well, these long term forecasts are based on numerous assumptions which may prove to be false. For instance, interest rate and rising exchange rates could very well neutralize even these small gains forecast thus far. However, even if the gains are not considerable and the

free trade agreement has minor or no aggregate effects on the economy, the fiscal consequences to the federal and provincial governments may thus be correspondingly small or negligible. It is our view that this is the more reasonable assumption to make unless and until compelling arguments and evidence to the contrary are produced. What this means is that existing equalization payments and other conditional and unconditional transfers can be assumed to remain unaffected by the CUSFTA.

Those who fear that such transfers are at risk appear to be making the following argument. At bottom, they presume that the CUSFTA will lead to a much smaller role for the government in the economic and social policy areas than is presently the case. Governments in Canada will be less prone to regulate economic activity and may even pursue policies of deregulation in order to be more in keeping with American regulatory behaviour and philosophy. This is a complex subject and there is more mythology than reality and substantive analysis on these matters. In any case, we do not see any obvious or major relevance of this to the concerns of this report. Other arguments that the CUSFTA will lead to the reduction of the size and role of the government are more germane to our concerns. Two lines of argument are offered. At a macro-economic level it is argued that reductions in the rate of economic growth and greater unemployment will mean loss of revenue to governments, forcing expenditure reductions. Social programs will thus be at risk through reduced revenues and deficit-cutting policy initiatives. However, the premise of major job loss and reduction in future growth rates that underlies this argument seem to us to be unrealistic and generally unfounded. The other route to the same end is

based on a different argument. It is often argued that the CUSFTA will lead to the harmonization of our tax and social policies with those in the USA. We address the matter of tax harmonization first and leave the matter of social policy harmonization for later comment and discussion.

The extant international trade theory does address the issue of the harmonization of tax and financial policies but hardly ever focuses on the issues of harmonization of the expenditure side of the fiscal budget, especially welfare state policies and programs, or the regulatory activities of the state that concern such policies and programs. We believe that, just as economic theory predicts, and as recent tax reform proposals and discussions surrounding them in Canada suggest, there is already pressure to "harmonize" select Canadian taxes to those in the U.S.A. To be sure, not all taxes are affected; the property tax, for instance, is obviously not affected. By contrast, the more mobile the factor of production is between the two countries, the more pressure there is for tax harmonization. Thus we would expect the taxation of capital income to be harmonized to a greater extent than other taxes. While labour is mobile, it is constrained and influenced by factors other than the personal income tax rates, such as quality of life, language, culture, social services, medicare, and a myriad of other things. Canadian and the US income taxes have been different for a long time even over the past 25 years when trade between the two countries increased rapidly such that even before the CUSFTA about 80 percent of the bilateral trade was essentially "free" of tariffs and related barriers. In short, while tax harmonization will occur

it will be focused largely on corporate and capital taxes and to a much lesser extent on other taxes.

This admitted, it must be noted that corporate taxes in Canada accounts for a lower percentage of the aggregate tax revenue than in the U.S.A. Thus, tax harmonization does not automatically mean lower government revenues. It should be further noted that given the huge budgetary deficits in the U.S.A., tax reductions there are not likely, not unlike the situation in Canada. Indeed, despite the "read my lips" promise of no tax increases by President Bush, tax hikes may in fact occur. At the very least he did not promise any reduction in taxes, a key ingredient of "reaganomics" (which, incidentally contributed significantly to the massive budgetary deficits that former president Reagan had promised to eradicate). These arguments suggest that fears of a significant reduction in tax revenue in Canada as a result of tax harmonization is unrealistic. We conclude that the fiscal federalism in Canada is not threatened by the CUSFTA, and that arguments to the contrary are exaggerated, and perhaps due to naive fears of the "market oriented" philosophy that is current in both Washington and Ottawa and which underlies the CUSFTA.

It might be further noted that the 'rhetoric' of smaller governments, the reduction in taxes and cutbacks in social spending is much less common in Canada than in the U.S.A. Finally, it would be interesting to see how President Bush would make the United States with such massive social problems in the areas of health, housing, education, drug abuse, aging population, etc. a "kinder and gentler" place with reduced tax revenues,

let alone a reduction in the role of the government in the needed programs and policies.

We turn next to the effects of the CUSFTA on social and health policies that make Canada a "kinder and gentler" place than the USA, in the view of both Canadians and Americans.

Groups opposed to the free trade agreement fear that it would jeopardize the continuation of our social programs including Medicare. In an advertisement in all the major newspapers in Canada, the Canadian Labour Congress declared (even before the final draft of the agreement was released) that a free trade deal is "a certifiable threat to such valued social programs as pensions, unemployment insurance, and Medicare". The advocates of the deal strenuously denied this charge. This issue became one of the most important and pivotal arguments in the course of the general election of 1988 involving even Justice Emmett Hall, who in the midst of an election when the Liberals had surprisingly taken the lead in the popular polls, declared that Medicare was not at all threatened by the CUSFTA.

Those who believe Medicare will be threatened rarely explain why and how the threat will materialize. The few who do, refer vaguely to some arguments that we address in the next few paragraphs.

It is sometimes suggested that Medicare constitutes a general subsidization of all employers in Canada. The concept of subsidy is unfortunately yet to be defined in the context of the CUSFTA, but it is highly unlikely that the definition would be such as to require us to get rid of Medicare. The monopolization of such public services by the state is permitted under the CUSFTA. Besides, publicly-financed health care services

for the aged (Medicare) and the poor (Medicaid) and a few other health services account for 40 percent of all health care expenditure in the USA. As well, corporate and employee purchase of private health insurance is subsidized by tax-expenditures under the U.S. tax system. The value of these subsidies is almost as large as the expenditure on the Medicaid program (Manga, 1988). Nor can it be said that Canadian employers pay nothing for Medicare. Their contributions may be said to be factored into the corporate tax rates. In all provinces, employers pay some health care costs directly through their Worker's Compensation programs, and in three provinces and one territory, for their employees' health insurance premiums. It might be noted that in other "free trade" blocs, health insurance policies of member countries remained virtually unchanged (Manga, 1988). And whatever changes were made were based on ideological, rationalization, efficiency and cost-containment grounds and not for the reason of harmonizing one's health system to that of other systems as the British experience since joining the European Economic Community amply demonstrates.

Another threat to Medicare cited by the opponents of the CUSFTA, relates to the private, for-profit management of hospitals and other health care facilities in Canada. But the CUSFTA formalizes what already exists; private management of health care institutions was permissible before the CUSFTA. There is, of course, very little private for-profit management of health care institutions in Canada at present. It is not at all clear that the large, multi-national corporations of the U.S. would find Canada hospital or sufficiently profitable to expand into. Provinces control the

budgets of hospitals, and are obligated to enforce the principles of Medicare. Provinces are not likely to alter the codes and regulations that govern hospitals in how they provide services to the public. The Federal government too, has the instrument to monitor the health sector through the Canada Health Act. Fears of U.S. style fees and charges to patient are highly unlikely in Canada, as is the denial of health care to the "uninsured". The expansion of for-profit private management, Canadian or American, is uncertain and it may never amount to much. But even then, it is not necessarily a threat to Medicare, if the latter is, as it should be, understood as a program governed by the five principles of universality, accessibility, comprehensiveness, portability and public administration of the plans. We do not see a threat to Medicare through this means. Interestingly, it is said that it was the Canadian representatives of the hospital management firms who asked that this feature be included in the agreement, and not as many would suspect, the Americans.

For the above reasons, we conclude that Medicare is not threatened by the CUSFTA. We proceed to comment on other aspects of the health care system that may or may not be affected by the free trade agreement. Following this we make a few observations on other social programs and the CUSFTA.

The deal will not mean a free flow of health care professionals between Canada and the United States. It does facilitate and simplify the procedures for moving from one country to the other for those who are otherwise entitled to work in Canada or the U.S.A. as the case may be. The

CUSFTA per se is not likely to affect the relative wages and fees of health care professionals in Canada.

There is an extensive private, for-profit sector involvement in the provision of nursing home care in Canada. There are large nursing home chains in the US that might find expansion into Canada worthwhile inasmuch as this sector is still quite profitable and the expansion of demand is assured by an aging population. As well, US takeovers of Canadian enterprise will not be subjected to Canadian review as long as it is below $150 million (by 1993). Will there be expansion of US nursing home chains into Canada? We have no definitive answer to this question. It could be argued that investment by U.S. firms in not problematic, as long as Canadian provinces maintain their control over the policies and regulations that govern the industry. Is there any reason to believe that these policies and regulations will be altered if U.S. nursing home chains were to enter and expand into some provinces in Canada? Again, we do not know. We note only that U.S. firms have not been well disposed towards government regulations and control in the nursing home industry in the United States. They may thus resist and attempt to alter existing Canadian controls and regulations.

It is difficult to see how a free trade deal will impact on home care, extended care, and community-based services. It is unlikely to do so, though, there are sizeable private firms in the United States that concentrate in providing home care services. Provincial programs and regulations and their integration with other publicly-provided services could make a major U.S. push in these services quite unlikely.

It is also rather unlikely that the CUSFTA will help to reduce health care costs in Canada. The health care industry is highly labour-intensive, a component of cost not affected by the agreement. Most imported equipment, drugs and supplies enter Canada duty free, while on many goods the current levels of tariffs are rather low. As well, the reduction in tariffs may not lead to lower prices for imports.

Finally, the free trade deal will affect some health care products markets, specifically pharmaceuticals and devices. In light of the small markets in Canada, economies of scale in production, heavy research and development costs, extensive marketing requirements, it is difficult to see any permanent and long-term increase in domestic manufacturing of such products in Canada. Indeed a reduction in tariffs may encourage further imports from the U.S. (Manga, 1988).

From the foregoing, the implication of the CUSFTA for the health care system in Canada is largely benign. What about other social policies? Public pension schemes, public education, the Canada Assistance Plan are all social programs unaffected by the agreement. In our view so is the unemployment insurance system, though as the Canadian Council on Social Development (1988) pointed out, it is not clear whether all aspects of the Canadian unemployment insurance system is unaffected by the CUSFTA. Specifically, the CCSD asked whether the differential unemployment insurance benefits paid to unemployment workers in specific industries (e.g. logging, fishing) or in some regions (e.g. maritimes) is safe under the CUSFTA? Would such schemes not be considered to be equivalent to 'industrial subsidies' as some groups in the U.S. have charged? In the

absence of a definition of subsidy applicable to the agreement it is difficult to answer this question.

Our overall conclusion is that on the whole most social policies in Canada are safe and can be left intact with respect to the CUSFTA, though there are a few unanswered questions and uncertainties with regard to particular features of some of our policies.

We repeat that any analysis of the CUSFTA must of necessity be speculative and conjectural. There is no past experience with free trade between Canada and the US to draw on for the purposes of the questions we have tried to answer. We do find the gloomy and dire predictions on the future of social policies and programs far less convincing and credible and find little bases for them.

The Meech Lake Accord

The Meech Lake Accord constitutes a major amendment to the Canadian Constitution should it be ratified by all the Canadian legislatures by the summer of 1990. Here we focus only on section S106A dealing with the federal spending power. As was mentioned earlier, it has provoked much controversy and commentary. In what follows we provide the details of the section on spending power and offer some analyses and observations pertinent to future fiscal federalism and social policy in Canada.

The BNA Act 1867, with its formal division of power has not limited our nation's approach to fiscal federalism and the development of public policy. The flexibility and the complexity of the Constitution is amply reflected in our approach to income security. As Banting (1985) points out

three traditional approaches find expression in the various policies in this area. There are examples of unilaterism (family allowances, old age security, unemployment insurance, guaranteed income supplements are examples of unilateral federal programs in this area). There are examples of "co-operative federalism" (perhaps best illustrated by the Canada Assistance Plan). Then there is "multiple vetoes" approach featured in the Canada Pension Plan (CPP). The federal government can block any change to the CPP, but it must gain the approval of two-thirds of the provinces and two-thirds of the population to amend the CPP itself.

Federalism is not just an abstract idea with a fixed division of power but also a process of adopting joint policies and making joint decisions on common or overlapping problems. With respect to the federal spending power section in the Meech Lake Accord we would be wise to note the observation of Cameron and Dupré (1983, 140).

> "The manner in which the spending power has been applied in different ways at different times has been a source of centralization and decentralization, of symmetry and asymmetry, of unity and disunity in Canadian federalism - all of these without ever altering so much as a comma in the text of the (Constitution Act of 1867). In the process the spending power has made nonsense of the allegedly "water-tight" compartments into which the [Constitution] Act divides federal and provincial jurisdiction. "Water-tight" compartments are not "money tight".

In Canada, it seems that politics can effectively permit (inhibit) what the Constitution prohibits (permits). The point of this observation is

to provide a backdrop to the section S106A of the Meech Lake Accord. One other point needs to be made at this juncture. Whether or not the federal spending power is legitimate in terms of the Constitution Act, 1867 had never been formally answered by the Supreme Court of Canada, "and the direction the Court would take if confronted with the problem is quite uncertain" (Lajoie, 1988, 174). While provincial governments have not sought a Supreme Court decision on the matter, during the 1980's legal challenges to the constitutionality of the federal government's spending power were mounted by private interests, perhaps the most notable being the challenge by the Ontario and Canadian Medical Association following the enactment of the Canada Health Act. (It should be noted that the OMA and the CMA are challenging not just the federal government's spending power, but more pointedly, the authority and legitimacy of both levels of government to disallow or ban extra-billing).

Section 106A (1) obliges the federal government to compensate a province that chooses to opt-out of a future national shared-cost program in an area of exclusive provincial jurisdiction, if the opting-out province undertakes an initiative that is compatible with the program's objective. Section 106A (2) adds that the federal-provincial division of jurisdiction (and thus legislative authority) as we now have it, is not altered by Section 106A (1).

S106A is in essence a historic compromise in which the federal government is constitutionally obligated to compensate an opting-out province in exchange for the explicit legitimation of federal conditional and shared-cost programs in areas of exclusive provincial jurisdiction. It

reflects a political reality that the federal government must respect provincial autonomy when it develops federal programs in areas of provincial jurisdiction. S106A also constitutes a clarification of the breadth and scope of the federal spending power. It formally entrenches the federal spending power in the Constitution, and removes the ambiguity and uncertainty referred to above. Critics in Quebec have concentrated on this aspect of the section. They have pointed out that S106A strengthens the federal spending power in both legal and political terms. For Parizeau it represents "un grotesque retour en arrière". In effect, S106A declares a truce in Quebec's long and bitter war against the principle of spending power. Lajoie (1988) has argued that S106A extends federal executive power and that this in the crucial matter. The fact that S106A(2) states that "nothing in this section extends the legislative powers of the Parliament of Canada or of the legislatures of the provinces", is not especially meaningful. Lajoie argues that S106A(1) empowers "the federal executive authorities, merely by entering into an agreement with some provinces, to impose discretionary conditions that would translate into constraints on the exercise of provincial legislative jurisdiction and thereby modify the constitutional distribution of powers. The net result will be a transfer of powers from provincial legislatures to the profit of the federal executive" (Lajoie, 1988, 185). In short, federal executive power limits, constraints and otherwise influences provincial legislative authority. Other commentators have suggested that despite entrenchment, the flexibility embodied in S106A and the opting-out rights with compensation means that it "constitutes a fair deal for all side" (Fortin, 1988, 223).

Another criticism made of S106A is the one Smiley (1963) made of earlier conditional grants, and that is, that the spending power compromises political accountability.

S106A has been also criticized as being too centralizing by some analysts and too decentralizing by others. Representative of the latter group are Coyne (1987), Kilgour and Levesque (1987), and Johnson (1987) who believe that the section would lead to the balkanization of social policies and programs, shift the initiative and power in the social fields to the provinces and undermine the 'bonds of nationhood' as far as future shared-cost programs are concerned. Johnson (1987) suggests that under the Meech Lake Accord Canada's Medicare program would not have been implemented, at least not with the principles and standards presently embodied in the Canada Health Act. Others agree that S106A is decentralizing but believe it be appropriate and approve of S106A precisely because it restricts the federal spending power (Petter, 1988). As suggested above, Quebec commentators have tended to be critical of and disapprove the centralizing tendencies of S106A. Yet others agree that it may centralize power in Ottawa but approve this result. In short, various analysts have suggested rather opposite tendencies of this section of the Meech Lake Accord, and make these observations with either satisfaction or dissatisfaction at the prospects. Courchene has observed that "the majority of contributors to the Meech Lake debate come down somewhere in between these centralist and decentralist interpretations, albeit with a rich variety of economic, political and/or constitutional reasoning" (Courchene, 1988, 66).

There is an aspect of S106A over which there is little dispute and disagreement, and that is its characterization as being subject to wide and diverse meaning and interpretation. Whyte (1987, 17) pointed out its "massively indeterminate language" in his submission to the special Joint Committee of the Senate and the House of Commons on the 1987 Constitutional accord. Despite the "horrendous" ambiguities and lack of clarity, most analyst do not expect any court challenges. Many have observed that provincial governments have carefully avoided legal certainty about the precise limits and scope of the Ottawa's spending power, preferring political resolutions of their conflicts. "The negotiated has always seemed safer than the litigated" (Banting, 1988, 164). This reluctance of provincial governments is quite understandable. Constitutional challenge may jeopardize the continuation of some financially and socially important federal-provincial efforts. S106A is also likely to mean that private interests too would not wish to challenge the federal government's use of its spending power (Banting, 1988; Dupre, 1988). The deterence will not only apply to future programs but to existing programs as well. According to Dupré (1988, 209) "a constitutional challenge such as the one envisaged to the Canada Health Act by the Ontario Medical Association in the heat of the extra-billing issue is a far more risky undertaking with S106A than without it". The judicialization of the federal spending power is thus even less likely than before.

We return now to explain why S106A has been described by many as a "showcase of uncertainty".

What makes a shared-cost program "national"? Is the term national to mean all, most or several multilateral federal provincial program offered on precisely the same or like terms? Dupre (1987, 207) asks "is there a point at which a series of bilateral federal provincial shared-cost initiatives such as those spawned pursuant to the alphabet soup of DREE, DRIE and ERDA could be taken as constituting a national shared-cost program"? Could the federal government avoid calling a shared-cost program "national" by negotiating bilateral agreements?

What does "shared-cost" program mean? In the narrow, conventional sense, "shared-cost" refers to a formula that determines the federal (or provincial) governments share of the eligible program costs, as for example under HIDSA (1957) and the Medical Care Act (1966). But does block-funding geared to a set of principles, criteria or standards (for e.g. the Canada Health Act) constitute a shared-cost program? What about block-funding for a program without any specific conditions (for e.g. EPF funding for post-secondary education)?

Do we really know what the areas of exclusive provincial jurisdiction are? Fiscal federalism related to sections 91 and 92 of the BNA Act, 1867 are replete with claims and counterclaims about which government has exclusive jurisdiction over precisely which matters.

What does the term "initiative" mean? Presumably, an initiative may be less than a "program", but how would we determine and judge an "initiative" that is "compatible with the national objectives". Which initiative will qualify and which won't? The flexibility afforded by the Canada Assistance Plan suggests that this question is and will be a pertinent one for future

shared-cost programs. Questions abound with respect to what "national objectives" and "compatibility" mean. How do we distinguish "objectives" from standards, criteria, principles, and codes of conduct? The fact is that "national objectives" was not given clear definition in the constitutional text. One should remember than even generally expressed proposition may carry rather specific implications. For example, if universal accessibility under uniform terms and conditions was taken as a "national objective" than arguably a ban on extra-billing would seem to be an essential element of any provincial "initiative" that was "compatible" with the national "objective". A national "objective" could be so specific as to be in fact a national "standard", yet reference to "standards" was explicitly rejected during the negotiations over the Meech Lake Accord.

It must be noted that S106A speaks of national shared-cost program "established by the Parliament of Canada" so the courts would have interpret these objectives in the way Parliament meant or articulated them. However, this does not mean that Parliament will specify these national objectives unilaterally even though it could do so legally. Unilateralism in this regard would lead to widespread opting-out, an outcome the federal government would want to avoid. There is also an ethic of joint planning both implicit and explicit (Section 148) in the Accord. Senator Murray noted that "extensive negotiations would have to take place between both levels of government. And it would be wiser if both the federal and provincial governments agreed beforehand on the program's national objectives" (Hogg, 1988, 169). Wiser and necessary, certainly, but will this negotiation pre-empt disputes and questions of the sort raised above?

It is evident that "objectives" are meant to be less binding than "standards" but how much less binding is a natural and important question that arises in the context of S106A.

Returning to the term "compatibility" - a new term in the lexicon of fiscal federalism - what might this concept mean? Is it "the same" or "essentially the same", "consistent", "similar" or just "sympathetic"? Or would anything that is not directly inconsistent with the "national objectives" do as well? Indeed, does compatibility refer to the closeness of objectives or to the closeness of the means to these objectives or both? Problems of interpretation are inevitable when the wording of the section is deliberately meant to be sufficiently general as to meet most differences in regional preferences.

With regard to the terms "reasonable compensation" two questions arise. What form must the compensation take and what is the 'reasonable' amount? With regard to form, either cash or tax points or a combination thereof would seem reasonable on the basis of past experience. Presumably, it is the federal government that will decide on the form of the compensation. If it has any need or interest in enforcing its national "objectives" then presumably cash compensation would be preferred. The transfer of tax points makes more sense for unconditional programs. As to what amount of compensation is reasonable, on the basis of opting-out experience to date, "reasonable compensation" would consist of whatever the province would have been entitled to had it joined the national program. If the opted-out provinces decide on "initiatives" that are more costly than the "national" program, the compensation would still be the same.

Presumably, discretionary choice on the part of the opted-out province should not entitle it to extra federal compensation. What about the opposite situation when the opted-out province has costs considerably less than the national average? Would a lesser sum be reasonable? Would the federal government argue its case on the basis of provincial costs only? Would it and should it also justify its payments on the basis of the degree to which the opted-out province met the national objective? What if the lower costs of the opted-out province is due mainly to organizational, administrative and the efficiency of its delivery system(s)? Will the formula be based on only the national costs, or only provincial costs, or some combination of the two, or perhaps even non-cost-related factors such as the growth in the GNP? Would fiscal capacity and need be factors that determine reasonable compensation as the Atlantic provinces have argued for in the case of past shared-cost programs?

Opting-out of federal fiscal arrangements has a venerable history. In 1954, Quebec opted out of the personal income tax. Ontario, Alberta and Quebec are now opted-out of the tax collection agreements for corporate income taxation. Quebec has, of course, opted out of a number of shared-cost programs. As was mentioned in an earlier section, the federal government offered provinces the opportunity to opt-out of several federal-provincial shared-cost programs. Recently, the federal government allowed the provinces to opt out of family allowances by permitting them to redesign the allowances suitable to their situation. As Courchene (1988, 70) observed "opting out is no longer novel in the Canadian federation, it is quickly becoming the norm. Moreover, it applies to areas that

constitutionally, come under both levels of government". Finally it must be noted that the present constitutional position is that the federal government is not required to compensate provinces that choose not to participate in a national shared-cost program. With S106A, Ottawa is now constitutionally bound to do so.

It is important to note certain limiting conditions that apply to S106A. In some debates over S106A these limiting conditions have been ignored or overlooked. Thus S106A applies only to new programs, not to existing ones. Secondly, S106A applies only to shared-cost programs "in an area of exclusive provincial jurisdiction". That is, it does not apply to programs in areas of federal jurisdiction or concurrent federal-provincial jurisdiction. Thirdly, S106A does not prohibit federal recourse to tax expenditures (use of the income tax system) as a means of pursuing national and provincial objectives. Direct transfer to individuals is not subject to S106A. It might be noted that tax expenditures are a potent instrument for the achievement of economic and social objectives. Fourthly, S106A does not apply to bilateral arrangements but only to national programs.

From the foregoing discussion it is apparent that S106A will affect the design of future shared-cost programs. There will be much greater variation in the health and social services programs developed in the future as compared to existing shared-cost programs. This variation is sometimes called balkanization by those who fear that S106A will be too permissive of provincial variations and idiosyncracies in the design of their programs (initiatives). In fact, the emphasis on flexibility is apparent in terms such as "national objectives", "initiatives", and

"compatibility". Despite this much increased flexibility implied by S106A, one feature that future shared-cost programs will and must share with existing ones is the requirement of portability. Presumably Ottawa would insist on transferability and portability to give the ten provincial programs or initiatives a "national" character.

Barker (1988) has suggested that the fear that the Meech Lake Accord will result in quite dissimilar social programs is exaggerated. Besides, he points out that even under past cost-sharing agreements there were considerable differences in program design. His retort to the critics of the Meech Lake Accord is that their argument "that the Accord will deprive Ottawa of the ability to establish fairly uniform services in the provinces is to defend a power that the federal government has never had" (Barker, 1988, 36).

Will S106A inhibit or promote further shared-cost programs in the future? Whatever the answer it is apparent there future shared-cost programs will only be established after serious and full negotiations between Ottawa and the provinces. Courchene (1988) and Norquay (1987) suggests that the new federal spending power is likely to enhance the probability of future shared-cost programs, primarily because it is an improvement over the status quo inasmuch as it offers greater flexibility in the design of programs, and requires greater and extensive negotiations. Others like Dupré believe "S106A will have minimal consequences for the conduct of federal-provincial fiscal relations" (Dupré, 1988, 210). He argues that the new avenues for government intervention have shifted from the education, health and social services areas to of exclusive provincial

jurisdiction to the gray areas where federal and provincial jurisdictions overlap and intertwine. Also, in future the federal government will likely make greater use of the income tax system to pursue its socio-economic goals. Banting (1988, 168) too argues that "it seems unlikely that the new rules would lead to a significantly more rapid expansion than would otherwise have occurred". Nor is S106A so restricting of the federal spending power as to return Canada to the paralysis of the 1930's, when very little federal-provincial effort and programs were developed despite a massive need for them. The question that perhaps is most pertinent is whether S106A will constrain the federal government from taking bold action on a national level. Will S106A condemn the political system as a whole towards an incremental process of policy change. Since S106A will require consensus on a much larger scale than before, what scope is there for quick and measured change in a federation of considerable diverse regional and ideological inclinations? Consensual mechanisms can be stymied by those least interested in change. Banting (1988, 172) suggests that S106A would result in "a more piecemeal, incremental pattern of change... the locus of initiative, innovation and boldness would be lodged more firmly at the provincial level, and new ideas would spread more slowly through demonstration effects rather than federal action". He also suggest an additional effect that ought to be kept in mind. The costs of incrementalism will be borne by the poor and the vulnerable in those provinces that chose not to go as far as they would have had to under stronger federal direction. The Canada Health Act of 1984 is perhaps a good illustration of this point.

CONCLUSIONS AND RECOMMENDATIONS

The previous sections on the design and operation of fiscal federalism in Canada has highlighted a fundamental observation throughout the discussion, and that is, that intergovernmental transfers are a necessary and inevitable feature of the political economy of a federation. This is certainly true of Canada. As well it is evident that intergovernmental transfers are of vital significance to Atlantic Canada. Of particular importance is the federal equalization transfer which is in effect an unconditional grant most responsible for bringing about a significant reduction in the inequality in the fiscal capacity of the Atlantic provinces vis-à-vis the national average. In what follows we present very briefly the salient conclusions of the foregoing discussion. We also offer some recommendations with respect to the position Nova Scotia may well be advised to take in future negotiations over the principal intergovernmental transfers we discussed in this report.

We begin, as we did before, with the Established Programs Financing Act as it concerns health care services. EPF offers several advantages to the provinces which they have acknowledged. Provinces are relatively freer and have greater autonomy to allocate resources in the way they wish in contrast to the earlier cost-sharing agreements it replaced. There is some evidence that EPF has led most provinces to de-emphasize acute care hospital and physician services relative to other health care services, though this is less evident for Nova Scotia. As well, and most significantly, it has brought about an equal per capita transfer to the

province. Under the shared-cost agreements, the Atlantic provinces were receiving less than others for insured hospital services. Other positive features of EPF include the fact that it reduced the administrative and accounting problems commonly experienced under the earlier shared-cost programs and that it was more respectful of the constitutional division of power between the federal and provincial government.

However, there are two principal concerns the provinces have with respect to EPF. The first is the falling share of federal contributions in relation to provinces' health care expenditures. The value of the escalator has been falling continuously since 1982-83. The Federal government would, of course, counterargue by pointing out the escalators since 1977-78 have been greater than the rate of inflation each and every year. That is, there has always been a positive real rate of growth in EPF transfers for medicare and extended health care services. While this is true, the fact is that the federal share of health care costs has been falling. What this means is that while the rate of growth in EPF transfers for health care services have been greater than the general rate of inflation (as measured by the consumer price index) the transfers have not grown at the rate at which health care costs have risen. Indeed, the federal share will continue to decrease as long as the escalator is less than the rate of increase in health care costs. Evidently, it has been very difficult for the provinces to constrain health care costs from rising faster than the rate of growth in the gross national product, let alone the general rate of inflation. In this sense, the escalator is simply inadequate, and provinces are bound to pay for a rising proportion of health care costs themselves unless and

until they succeed in bringing down the rate of increase in health care costs to that of the rate of growth in the GNP.

But even that is no longer good enough. This brings us to the second contentious and deeply worrying aspect of the EPF agreement. In 1986, the federal government arbitrary and unilaterally reduced the escalator by a full two percentage points. This was, as we saw, a sizeable reduction in the level of the EPF transfer costing the provinces about $5.6 billion. To make matters worse, a further 1 (one) percentage reduction in the EPF escalator will be imposed for the coming year and onwards. Federal payments under EPF will be lowered and the federal share of health care costs will fall further and faster than under the status quo. Once again, the federal government acted unilaterally in cutting its transfer under the EPF arrangements. It seems that the federal government is unwilling to pay as much for the programs the prime minister called a "sacred trust" in 1984. It is also apparent that the federal government is attempting to redistribute its fiscal deficit to the provinces somewhat via reduced transfer for EPF programs.

In light of these conclusions, we suggest that a return to some sort of cost-shared agreement is not advisable, nor is it likely to find general support among the provinces. In any case, it will not be acceptable to the federal government. We believe that a block-funding arrangement is the likely form of transfer for medicare and extended health care services in the future. However, while the form of the transfer is generally acceptable, an effort should be made to alter the specifics of the current EPF agreement. The first and obvious target for change is the elimination

of the successive 2 and 1 percentage points cuts from the EPF escalator. The original terms of the 1977 agreement should be the very least the provinces should demand of the federal government. Beyond that, provinces should also demand a "risk-sharing payment" over and above the escalator (in the way it was defined and calculated before Bill C-96). In essence, provinces should receive an equal per capita transfer in cash from the federal government, the value of which would be specified to be (say) 50 percent of the difference between the actual increase in health care costs (for the services covered by EPF) and the increase in the per capita transfer as determined by the three year moving average growth rate in nominal GNP per capita. This figure should be added to the escalator for that year to estimate the new per capita transfer. A simple formula should help to clarify what is being proposed. It is:

ROG = ESC + .5 (HCC - ESC), where

ROG the rate of growth in the per capita EPF transfer for health care services (medicare and extended health services)

ESC is the escalator defined and calculated in the way specified in the original EPF agreement in 1977

HCC percentage growth in the per capita health care costs nationally for medicare and extended health services.

It is clear that our "risk-sharing payment" proposal, reintroduces an element of cost-sharing in EPF, at least for those years when HCC is greater than ESC. We believe that such a scheme will not encourage provinces to let up on health care cost-containment. After all, no one province can control nor be sure of the difference between the two growth

rates to be assured of a federal risk-sharing payment, let alone the magnitude of it. In fact, under block-funding, provinces have a powerful incentive to contain costs and this is not materially affected by our proposition.

Several variations to our proposal can be entertained as follows. Instead of a figure of a 50 percent sharing rate, a 40 percent or even a 25 percent may be considered. Alternatively, a risk-sharing payment is only to be made if HCC (the percentage increase in health care costs) is greater than ESC (the value of the escalator or the percent growth in the per capita transfer as calculated by the formula specified in the EPF Act of 1977) by 3, 4, 5 or more percentage points. Many variations are possible. Our purpose here is mainly to suggest how these variations may be structured.

Yet another alternative is to propose a completely different escalator than the current GNP escalator, preferably one based on health care needs. However, there are major conceptual and practical difficulties in finding need indices that will be generally acceptable to both levels of government. The fact that we have yet to base sharing formulae embodied in intergovernmental fiscal transfer in the health and social policy areas on need criteria is not difficult to understand.

With respect to post-secondary education, EPF has been successful in bringing about an equal per capita transfer thus correcting the highly unequal per capita transfer under the previous cost-sharing arrangement. We can only repeat our antipathy to the arbitrary and unilateral constraint on federal transfers for post-secondary education under the "6 and 5" program

in the fiscal years 1983-84 and 1984-85, and then later the further cutback of 2 percentage points from the EPF escalator under Bill C-96. Provinces will have to express forcefully that it is just such action by the federal governments that they find most objectionable. A respecification of the EPF agreement, effectively restraining the federal government from such cutbacks in the transfers for health care and post-secondary education services is all the more important in light of the recent federal actions and its current determination to reduce its budgetary deficits.

With respect to the Canada Assistance Plan, Nova Scotia receives a rather low per capita transfer compared to other provinces, including Atlantic provinces. It would be better for Nova Scotia to urge a shift from a cost-sharing formula under which the Federal contribution is 50 percent of eligible provincial costs to some other bases, preferably a national average costs per capita. Of course, high-per-capita-costs provinces would oppose such as a shift. We believe that the replacement of the provincial costs with national costs is not likely unless the losers from such a shift can be compensated for their loss. This, in effect, would mean that the federal government will have to increase the gross amount it transfers under CAP.

However, a more radical change may have a better chance of being acceptable to the provinces and the federal government. Basically, a block-funding of a range of social services much along the lines of Bill C-55 would be in Nova Scotia's interest. As we pointed out in the section on the CAP, provinces are afforded considerable flexibility under this shared-cost program and may well serve as a model for future national shared-cost

programs. While the flexibility afforded by the existing CAP agreement is acknowledged and appreciated, a block-funding arrangement would offer even more flexibility and constitute considerably less interference in a province's fiscal decision-making. As well, it will offer more freedom to provinces to organize their social services programs in the way they sit fit rather than the way they need to organize them in order to maximize their share of federal transfers. The federal government is not likely to accept a block-funding arrangement unless by doing so it can restrain or control the quantum of its transfers to the provinces. As with earlier cost-sharing agreements, the federal government will wish to replace an open-ended cost-sharing agreement (which CAP is) with a close-ended block-funding arrangement. Whether the provinces collectively would wish to accept a block-funding arrangement under which a fixed limit or a GNP based escalator determines the rate of growth of federal contributions is difficult to tell. What is clear is that the present cost-sharing formula embodied in CAP yields Nova Scotia considerably less than the national average.

The federal government does not seem to have a fixed plan regarding the future of CAP. Indeed, until the Meech Lake Accord is settled, CAP is not likely to be altered. It is also possible that CAP will not be altered even if the Accord where to be ratified. In light of these uncertainties, it would be wiser for Nova Scotia to start shifting as much of the costs of health care services under the CAP umbrella as possible. Furthermore, it should consider spending more on those CAP services that are a reasonable

substitute for health care services. After all, social services do affect the health of the population, though some more than others.

We have lauded the federal equalization payment as being singularly important for the Atlantic provinces in bringing about a marked reduction in interprovincial fiscal capacity. We believe that there is in fact not much wrong with this program. One could argue that the growth in these payments should not be constrained by the rate of growth in the GNP as is presently the case. But this is counterbalanced by the floors below which provincial entitlements cannot fall. The tax bases included in determining provincial entitlements is now more representative and fairer than ever.

One interesting feature of the equalization payments program, is that rapid economic growth in the non-recipient provinces (Ontario, B.C., Alberta) generates additional payments to the recipient provinces. The current economic boom in Ontario results in an unexpected additional transfer to the Atlantic provinces. Conversely, as economic slowdown in the non-recipient provinces reduces the level of equalization payment to the Atlantic provinces. This means that the Atlantic provinces need to be particularly careful to plan their fiscal policies in light of the changes in economic activity both nationally and in terms of the performance of their own provincial economies.

Finally, we offer one suggestion with respect to the specific federal transfers. In the tables in the appendix to the section on fiscal federalism and health care programs it can be seen that the federal contribution to health care expenditures for services other than medicare and extended health care services is rather small. As well, we noted that

some health services are covered under the Canada Assistance Plan. We would like to suggest that the various specific transfers for health care programs and the cost-shared health services under CAP be examined to see whether or not they may be consolidated under one or at least fewer cost-sharing arrangements or possibly even a block-funding arrangement.

The federal government's belief that it has recently become the victim of a fiscal gap is not a valid and supportable claim. Several analyses of this hypothesis have rejected this notion. Furthermore, they reject too the assertion that the federal transfers are responsible for the federal budgetary deficits and have argued against reducing these transfers. (This has not deterred the federal government from reducing its contributions for EPF programs as is evident in the May 1989 budget). Notwithstanding the above conclusion, we are of the view that further revenue-sharing through the transfer of more tax room to the provinces is not likely. On the contrary the most recent budget of May 1989 suggests that the federal government will grab as much tax from a value-added tax as possible, rather than leave this source of taxation to the provinces. Overall, the future of fiscal federalism in Canada is shaping up to be a very contentious and difficult one and one that may prove to be especially difficult for the Atlantic provinces. Finally we note that the argument that the Atlantic provinces' economic welfare is adversely affected by their "dependence" on federal fiscal transfers is without foundation. On the contrary, the existing equalization transfers are necessary and legitimate for purposes of interpersonal and interregional equity, and economic efficiency.

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Volume

2

THE REPORT

OF THE NOVA SCOTIA ROYAL COMMISSION ON

HEALTH CARE

Towards a New Strategy

Research Studies
Volume II

December 1989

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Introduction

The research studies listed below were prepared for the Nova Scotia Royal Commission on Health Care.

Although written under the auspices of the Royal Commission, the views expressed are those of the authors and do not imply endorsement by the Commissioners.

<u>Volume One</u>

Institute for Health Care Facilities of the Future	**Inter-Provincial Comparison of Health Care Expenditures**
	Health Status Indicators and Demographic Trends for Nova Scotia
	Fiscal Federalism from the Perspective of Nova Scotia

<u>Volume Two</u>

Canmac Economics Ltd.	**Economic Forecast**
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Stevenson Kellogg Ernst & Whinney	**Review of Relationship Between The Nova Scotia Health Services and Insurance Commission and Maritime Medical Care Inc.**
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MacLean Hospitality Consultants Ltd.	**Report on Cost and Quality of Hospital Food Production in Nova Scotia**

N.S. ROYAL COMMISSION
ON HEALTH CARE
ECONOMIC FORECAST

PREPARED BY: CANMAC ECONOMICS LTD.
LR. SACKVILLE, N.S.

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N.S. ROYAL COMMISSION ON HEALTH CARE: ECONOMIC FORECAST

EXECUTIVE SUMMARY

The main purpose of this study was to forecast growth of the Nova Scotia health care sector. In order to do this it was necessary to first forecast a number of strategic economic variables which would have an impact on the sector. By projecting growth one is able to determine the amount of funding that will be required to provide this level of service in the future. The relevant forecast period is 1989-2001.

The major conclusions reached in this study are as follows:

1. The Nova Scotia provincial government's health expenditure will be 3.26 billion current dollars by the year 2001. If our pessimistic outlook of the Nova Scotia economy prevails, health expenditures will be 2.97 billion while our optimistic forecast predicts a figure of 4.03 billion dollars. In 1986, health expenditures by the Nova Scotia provincial government was 939.7 million current dollars.

2. The Nova Scotia health expenditure will represent 35.5% of the provincial budget by the year 2001, benchmark case, 31.9% pessimistic case, or 38.1% under our optimistic scenario. In 1986, health expenditures by the Nova Scotia provincial government represented 26.6% of the provincial budget.

3. The inflation rate for the Nova Scotia health expenditure is projected to average 4.5% per year over the period 1985 to 2001. Our pessimistic outlook forecasts 4.69% while an optimistic scenario predicts 4.9% inflation. The inflation rate for

Nova Scotia health expenditure has been 1.33 percentage points greater then the Nova Scotia general inflation rate on average over the historical period 1971-1984. We expect this relationship to continue into the future with the gap between the two rates narrowing somewhat.

SECTION I
INTRODUCTION

SECTION I
INTRODUCTION

The future outlook for Nova Scotia's health care is dependent on three main factors:

1. ETHICS
2. ECONOMIC GROWTH
3. DEMOGRAPHY

Our report will focus on economic growth and demography. We will not attempt to 'forecast' the ethical foundation expected to exist but clearly the 'level' of ethics is a significant causal force in health care expenditures. For example, if society felt that 'abortion on demand' was not ethical, existing expenditures would perhaps show a significant decrease.

The other driving forces; demographics and the economy are interdependent. Each factor impacts on the other. For example, a strong N.S. economy will result in more in-migration leading to higher population growth. Figure 1 traces out in a general way the interactions that exist between these 'driving forces' of health care expenditures. Although our presentation will discuss the 'driving forces' separately, it will be important to keep in mind the interdependent nature of these factors.

Our methodology for deriving our long term outlook for Nova Scotia's health care sector is based on an econometric methodology. We first derive an economic outlook for the N.S. economy using our N.S. econometric model. The N.S. health sector's key economic outlook is derived by estimating a series of equations that are linked to the N.S. econometric model.

Any long term economic forecast must begin with an appeal for forgiveness for being presumptuous. No one can PREDICT the long run future of the economy. The best we can do is PROJECT the future based on the information at hand. A projection takes plausible assumptions and derives the implications of these assumptions for those economic variables of interest to the corporate planner.

Using an econometric model of the Nova Scotia economy to derive our forecast has several advantages. First, it forces us to be explicit on our assumptions. We have to specify in quantitative terms the assumptions we are making respecting such things as the U.S. growth rate etc. Our quantitative approach ensures a more objective development of assumptions. Second, an econometric model specifies the relationships thought to operate in the economy. The relationships are statistically verified using historic data. Past economic history is, of course, a crude guide to the future but it does provide a guide.

FIGURE I

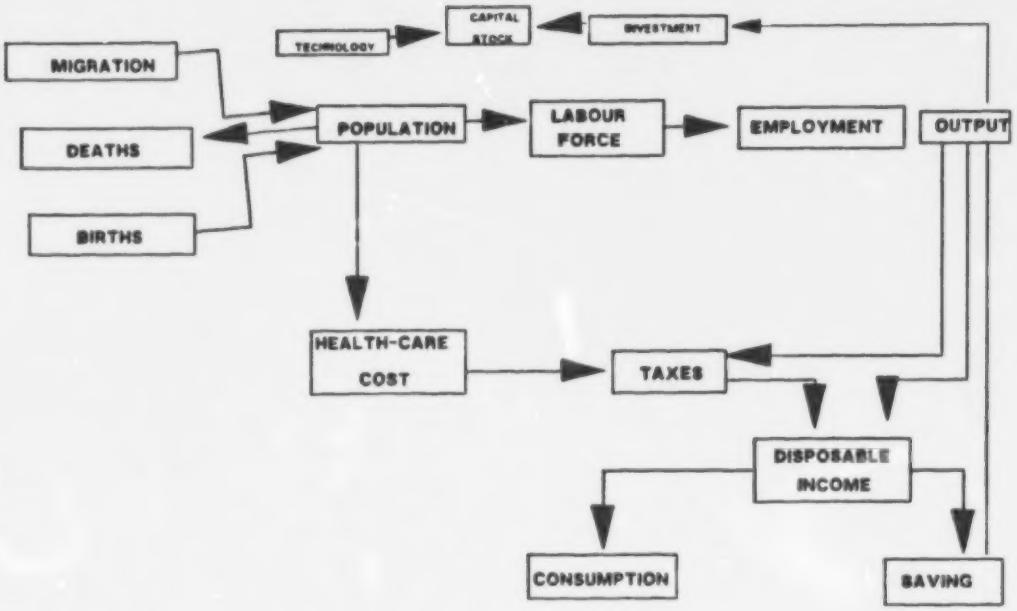


Figure I describes the relationships between demographic and economic variables at work in the economy and specified in our model. The size of the Nova Scotia population is affected by the level of births, deaths and net migration. The population gives rise to our labour force, those of whom being employed creating output in the economy. Part of this economic output yields investment expenditures which along with utilization of technology builds the province's capital stock. The remainder of output earns income which is separated into tax revenues to government and disposable income which is either spent or saved. Health care costs attribute to our population and absorb tax monies to pay for this social service.

This report is divided into two major sections. Section II of the report discusses the relevant strategic economic trends facing this province over the next several years. Population changes and implications for economic growth are discussed with particular emphasis on compositional change of the population and their resultant effects on the provincial labour force. A quantitative analysis yields usable forecasts of economic indicators which serve to shed some light on the future of the Nova Scotian economy. In addition, the impact of the Free Trade Agreement on the health care sector is discussed.

While Section II provides an overview of the province's predicted economic environment, Section III utilizes these projections as variables impacting on the health care industry. Expenditure growth specific to the industry is treated as well as the impact of inflation and the public stance on ability to pay for health services. The chapter closes by bringing into the discussion some qualitative trends which are expected to impact on economic variables of concern to the health care industry.

SECTION II

STRATEGIC ECONOMIC TRENDS

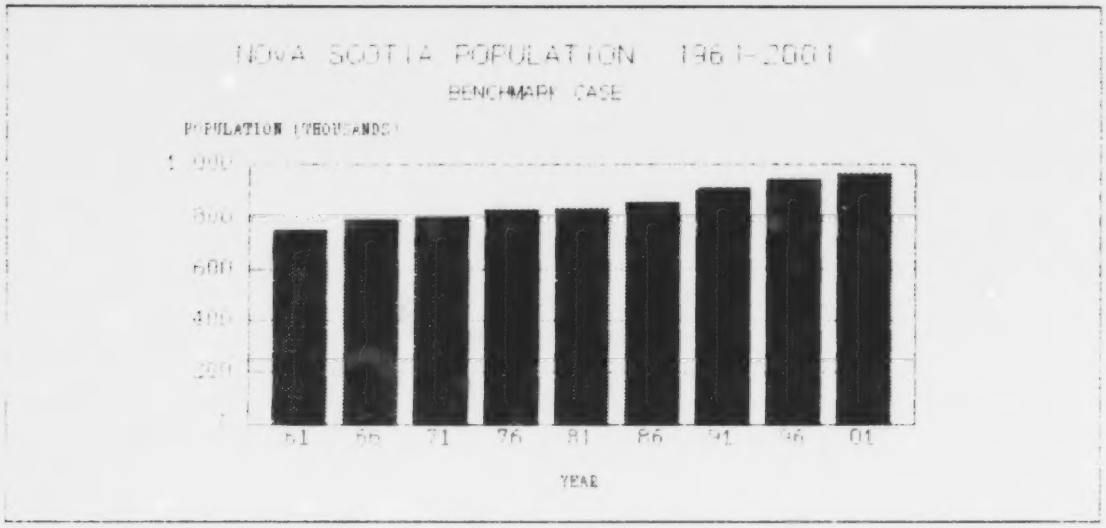
STRATEGIC TRENDS

There are several major economic trends that will affect the Nova Scotia economy over the long term. Each one has significant implications for the strategic planner. The strategic economic trends examined in this report include:

1. POPULATION GROWTH
2. PROVINCIAL OUTPUT
3. LABOUR FORCE AND EMPLOYMENT GROWTH
4. GROWTH OF SERVICE SECTOR EMPLOYMENT
5. GROWTH OF THE FEMALE LABOUR FORCE
6. PART-TIME VERSUS FULL-TIME EMPLOYMENT
7. INFLATION
8. WAGE RATES
9. IMPACT OF THE FREE TRADE AGREEMENT ON THE HEALTH CARE INDUSTRY

The report provides the results of projecting the Canmac Econometric model under three alternative scenarios - a pessimistic scenario, an optimistic scenario and a benchmark case. Our purpose in providing these is to test how sensitive the health sector is to alternative economic scenarios. Economic projections, particularly the long term, are subject to considerable forecast error. It is therefore quite important to test the sensitivity of our variables of interest - Health costs etc., to the underlying economic environment.

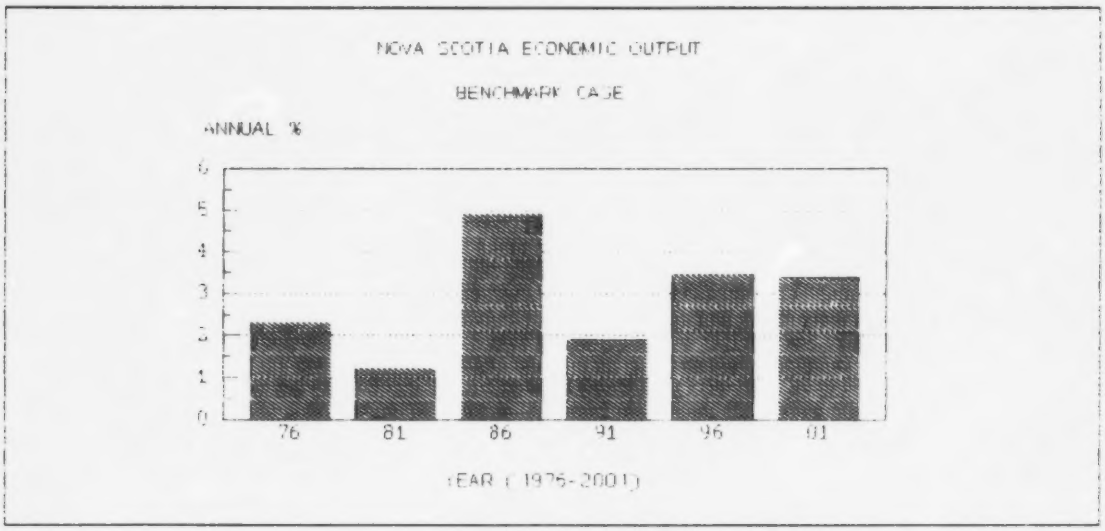
We will direct discussion to the baseline forecasts, however, where assumptions differ, reference will be made to our two alternative scenarios for purpose of comparison.



STRATEGIC TREND #1 N.S. POPULATION GROWTH

From 1981 TO 1986, Nova Scotia population grew by 3% from 847,445 persons to 873,190 persons. Using the CANMAC 500 - a population forecasting software model, Canmac Economics projects that Nova Scotia's population will reach 960,650 by 2001. This represents a 10.0% increase over the 1986 figure.

Furthermore, the average age of the population will increase. In 1986, the population between 35 and 54 years of age represented 23.8% of the total population. In 1996, this age group will represent 29.3% of the total population. Population greater than 65 is expected to make up 13.3% of the total Nova Scotia population by 2001.



STRATEGIC TREND #2 PROVINCIAL ECONOMIC OUTPUT

Over the period 1965 to 1986 real provincial gross domestic product - our most comprehensive measure of output, grew on an annual basis by 3.5 percent. Over the period from 1988 to 2001, our econometric model projects provincial output to average 2.37 percent growth per year.

The slight slowdown in provincial growth rates is due to expected slower growth (3.5%) in the Canadian economy. The U.S. economy is projected to grow at only 3.0% per year. These economies are in the mature stages of development and have aging populations - both of these factors will cause growth rates to level off. In fact, both the U.S. and Canadian economies can not perform much above 3.5% on average without creating a high inflationary environment that will be followed by a corrective recession. Further assumptions in our benchmark forecast include, a development of the Hibernia Oilfield and other general offshore activity. Alternative scenarios postulate different sets of assumptions.

Our pessimistic scenario predicts provincial gross domestic product to increase annually by an average of 1.74 percent.This pessimistic outlook is predicated on 2% growth in both the U.S. and Canada with inflation at 4.5% per year.No incremental investment from offshore activity or from the Halifax harbour cleanup is anticipated. As well, no impact from the free trade agreement or from ACOA initiatives is assumed.

Yearly growth in provincial output of 3.12 percent is predicted by our optimistic outlook. This forecast is drawn from a 4.5 percent U.S. and Canadian rate of economic growth. Inflation rates are higher at 5.0 percent per year. Offshore development will stimulate investment with an increase from 50 million constant 1981 dollars in 1991 to 150 million by the year 2001, representing a $10 million increment per year. Construction of a Nova Scotia Power Corporation plant starting in 1991 will generate 150 million constant dollars of investment over three years. ACOA and Free Trade will boost Nova Scotia GDP by $100 million per year from 1990 to 1996 and by $50 million per year afterwards. In addition, the Halifax harbour cleanup will provide yearly investment of $100 million dollars in the period 1991 to 1996. General offshore activity should create $150 million (1981 constant dollars) annually in additional investment between 1991 and 2001. Assumptions of each sceanrio can be reviewed more clearly through examination of the accompanying table.

ASSUMPTIONS OF THE MODEL

	PESSIMISTIC OUTLOOK	BENCHMARK CASE
U.S. GROWTH	2.0%	3.0%
CDN. GROWTH	2.0%	3.5%
CDN. INFLATION RATE	4.5%	4.5%
INVESTMENT ACTIVITES:	NO OFFSHORE ACTIVITY	DEVELOPMENT OF HIBERNIA OILFIELD & OTHER GENERAL OFFSHORE ACTIVITY
	NO HFX. HARBOUR CLEAN UP	HFX. HARBOUR CLEANUP INCREASING INVESTMENT BY $100MM PER YEAR (1991-1996)
	NO FREE TRADE NO ACOA IMPACT	ACOA & FREE TRADE IMPACT INCREASING NSGDP BY $100MM PER YEAR FROM 1990 TO 1996 AND $50MM PER YEAR AFTERWARDS TO 2001.
POPULATION GROWTH :	LOW. POP. GROWTH	MODEST POP. GROWTH

ASSUMPTIONS OF THE MODEL

OPTIMISTIC OUTLOOK

U.S. GROWTH	4.5%
CDN. GROWTH	4.5%
CDN. INFLATION RATE	5.0%

INVESTMENT ACTIVITIES:

OFFSHORE DEVELOPMENT INCREASING INVESTMENT FROM $50MM IN 1981 DOLLARS IN 1991 TO $150MM (1981$) BY YEAR 2001. ($10MM/YR).

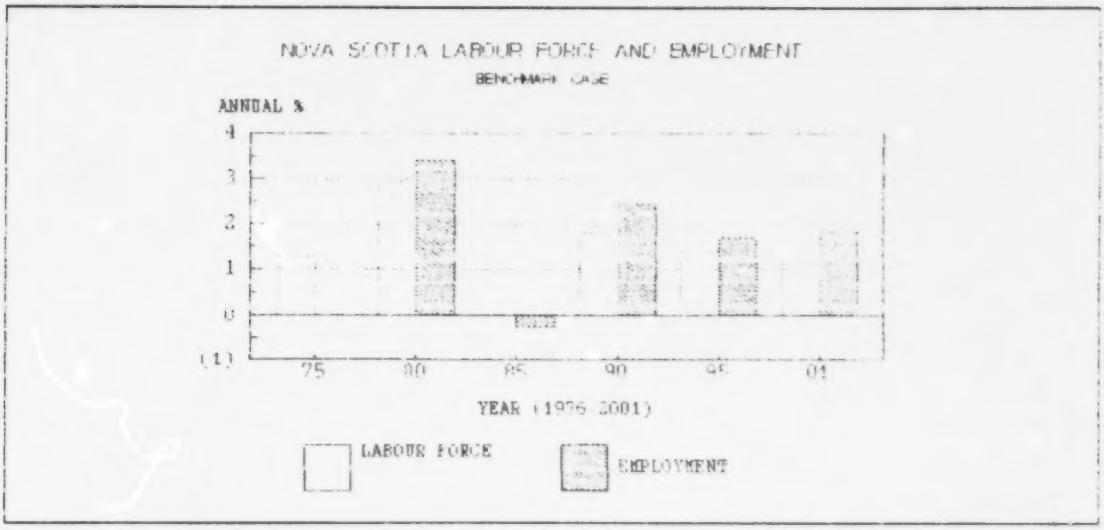
CONSTRUCTION OF N.S. POWER CORP. PLANT STARTING IN 1991 GENERATING $150 MM ($1981) INVESTMENT OVER 3 YEARS.

ACOA & FREE TRADE INCREASING NSGDP BY $100MM/YR. FROM 1990 TO 1996 & $50MM/YR AFTER TO 2001 ($1981).

HALIFAX HARBOUR CLEANUP ADDING $100MM/YR (1991-1996) GENERAL OFFSHORE ACTIVITY OF $150MM/YR (1991-2001).

POPULATION GROWTH :

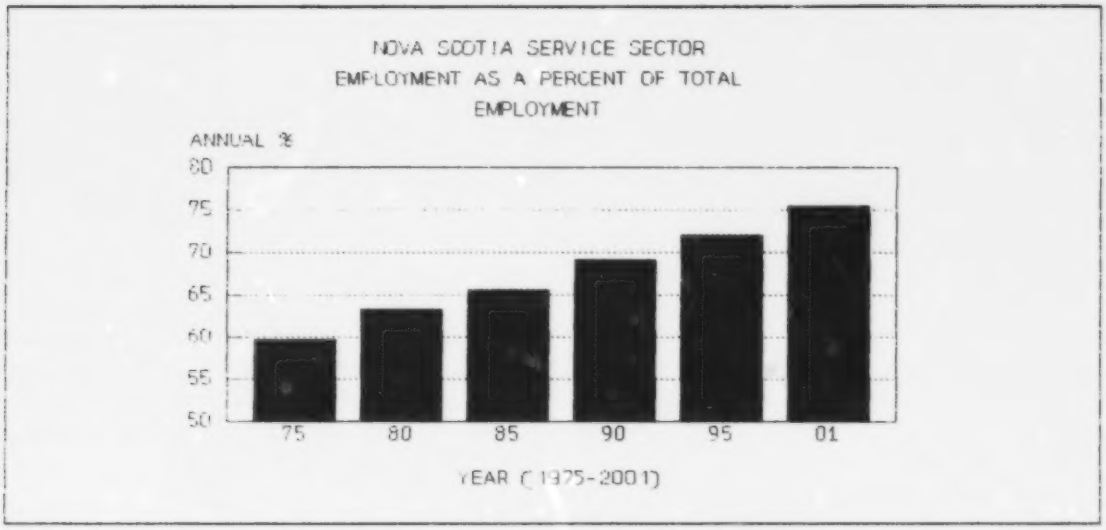
HIGHER POP. GROWTH



STRATEGIC TREND #3 LABOUR FORCE AND EMPLOYMENT GROWTH

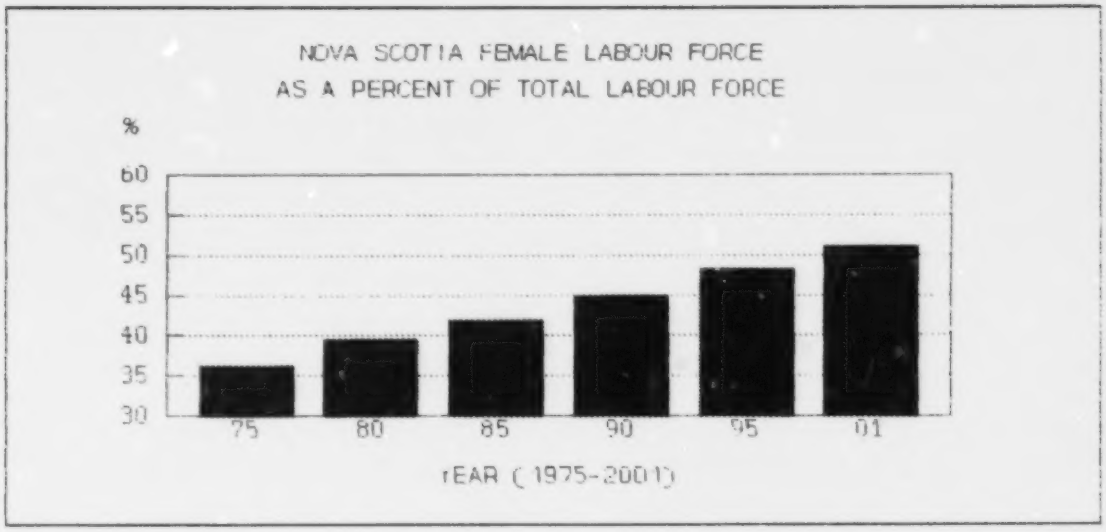
From 1965 to 1987, the Nova Scotia labour force grew on an annual basis by 2.37%, employment grew by 2.11% over the period. As a result, the 1965 to 1985 period saw a rise in unemployment rates. In 1965, the unemployment rate was 5.37%. In 1987, the unemployment rate was 12.59% down from a high of 13.8 percent that occurred in 1985. Over the period 1988 to 2001, we expect labour force growth to average 1.35% and employment growth to average 1.9%.

Given a slower population growth and a slower economic growth over the forecast period compared to the past, it is expected that labour force and employment growth will also slow. However, in contrast to the past, unemployment rates will improve over the forecast period reaching a projected 5.5% by 2001. This is due to the fact that employment growth is expected to outpace labour force growth over the forecast period. The reason for the slower labour force growth in the future is due to the baby-boomers reaching retirement age and leaving the labour force.



STRATEGIC TREND #4 N.S. SERVICE SECTOR EMPLOYMENT

The service sector employment (defined as the sum of employment in retail and wholesale trade, finance insurance and real estate, business and personal services and public administration) is the fastest growing sector in the Nova Scotia economy. In 1966, service sector employment represented 44.8% of total employment in Nova Scotia. In 1985, the service sector had grown to 65.6% of total employment. Under present trends, service sector employment will account for 73.18% of total Nova Scotia employment by 1996.

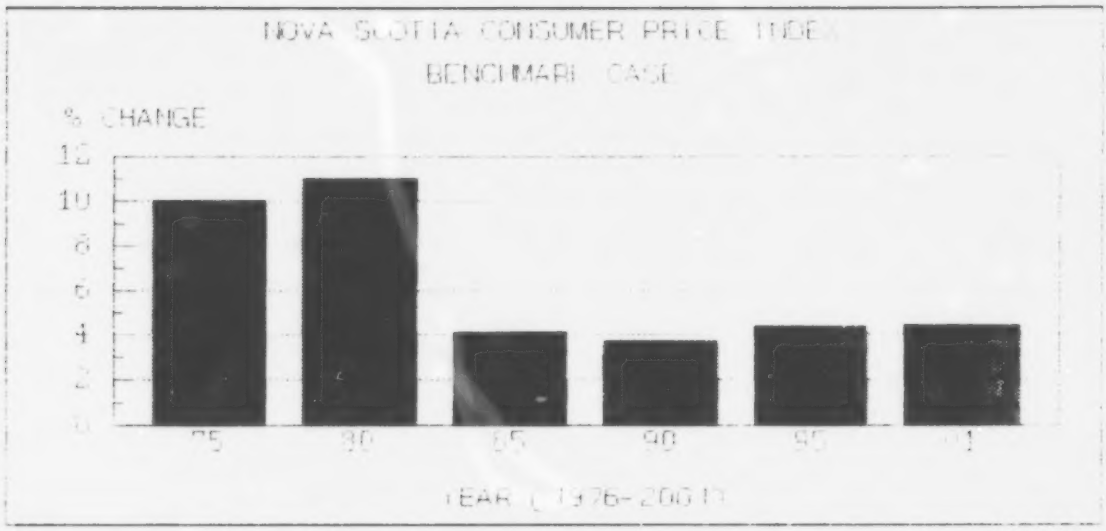


STRATEGIC TREND #5 GROWTH OF THE FEMALE LABOUR FORCE

The growth of the female labour force since the Second World War represents a significant economic trend. In 1975, Nova Scotia females represented 36.3% of the total labour force. By 1986, the percentage had grown to 42.5%. under present trends, females will become the dominant sex in the work force by the year 2000.

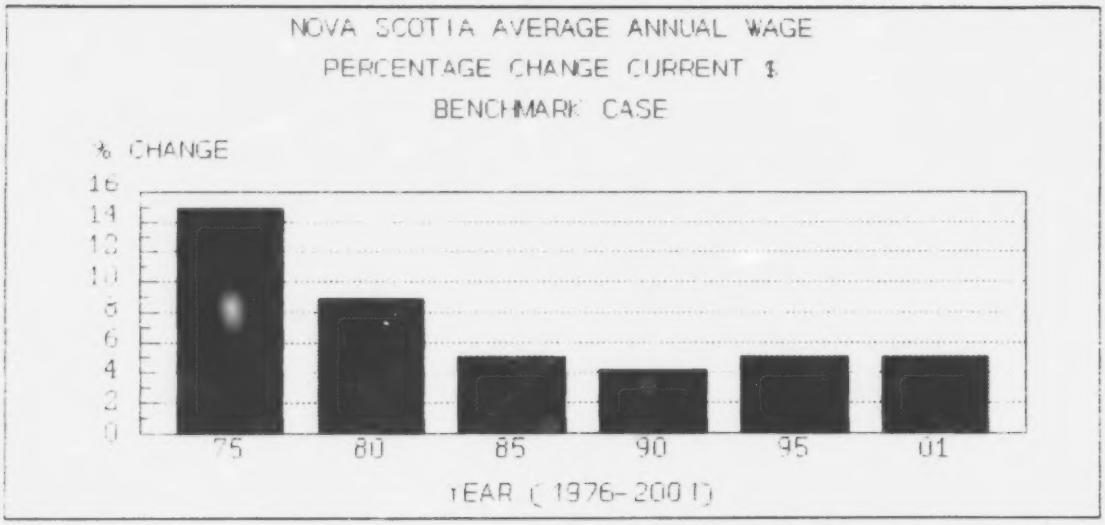
STRATEGIC TREND #6 GROWTH OF THE PART-TIME LABOUR FORCE

The increasing share of part-time workers in the economy is due partly to employer demands and partly to employee demands. Employers have been cautious in rehiring since the severe 1982 downturn in the economy and many have opted for part-time employees. Also, the increase in labour costs due to supplementary benefits has encouraged employers to hire on a part-time basis. Employees desire part-time employment to ensure they can spend more time with their children and other leisure activities. As incomes rise, the value of leisure time demanded increases. In 1975, 10.3% of employed Nova Scotians were part-timers. In 1986, this figure increased to 15.9%. Under present trends, the part-time labour force will increase to 21.% by 1997.



STRATEGIC TREND #7 INFLATION

The general rate of inflation in Nova Scotia is expected to be moderate over the forecast period. This is a result of the slow growth projected and current high unemployment rates. Furthermore, fiscal and monetary policy are expected to be restrictive over the period. This implies that government expenditures will not 'HEAT UP' the economy.



STRATEGIC TREND #8 WAGE RATES

The general level of wage increases are expected to follow the pattern of projected inflation rates. The level of productivity improvement will be low for the economy due in part to the slow growth scenario. Hence, wage increases will for the most part come from cost of living adjustments.

STRATEGIC TREND #9 IMPACT OF THE FREE TRADE AGREEMENT ON THE HEALTH CARE INDUSTRY

The Free Trade Agreement's (FTA) effect on the Canadian health care system will be negligible. The FTA is unlikely to reduce health care costs in Canada due to the industry's high labour-intensity, since labour is unaffected by the FTA (SEE MANGA, 1988). There are very few tariffs on equipment and supplies and hence, any savings from the FTA will be limited (SEE SHIELDS, CCHSE, 1988). The Canadian College of Health Service Executives (CCHSE) feels that some benefits may accrue to the Canadian health care sector via the expected improvement to the Canadian economy under the FTA.

Current excess capacity in Canadian and American hospitals will mean little chance for American investment in Canadian hospitals. With the aged expected to make-up a greater proportion of the Canadian population in the future, one would expect the FTA to lead to increased American investment in nursing homes for the aged in Canada (See MANGA, 1988). The influx of private, for-profit hospital management organizations in the U.S. may signal a change to the same trend in Canada, since this area is included under the FTA (See CHAPTER 14). However, U.S. health management firms may have a problem penetrating the Canadian market under the FTA due to their inexperience in a non-profit environment (See SHIELDS, CCHSE, 1988). In fact, many members of Canadian health management firms are ready to enter the U.S. market suggesting they may have the upper hand on their American counterparts (See SHIELDS, CCHSE, 1988). This is most likely due to the fact that administrative costs in Canada are generally much lower than those

same costs in the U.S. because of the easier administration of one health care scheme particular to each province (SEE MANGA, 1988). Thus, the American health management firms are not as cost efficient as their Canadian counterparts.

In conclusion the generally accepted view is that the FTA will not have any serious implications on the Canadian health care industry. The positive aspects of the FTA will be the proposed increase in the Canadian economy under the FTA and the expected increase in marketing of Canada's health care expertise to the U.S.

For a summary of this section's key points and a comparison with optimistic and pessimistic scenarios, please see appendix V: Projections of Key Economic Variables.

SECTION III
ECONOMIC STRATEGIC TREND IMPACT ON HEALTH CARE SYSTEM

III. STRATEGIC TREND IMPACT

The Nova Scotia economy is an amazingly resilient machine. The various sectors of the economy tend to move in harmony. If inflation is high then an individual sector's prices tend to be high. If general output is growing then individual sectors will tend to grow. We have used the existence of these relationships to project Nova Scotia health care expenditures into the future.

ECONOMIC GROWTH AND POPULATION IMPACT

The general economic environment impacts on the health sector through a variety of mechanisms. The most pervasive mechanism is through provincial GDP - the most comprehensive measure of the economy's output. Provincial GDP is a measure of the economy's output and represents potential demand for health services. Provincial GDP also represents ability to pay for health care. Assuming fixed tax rates, the provincial government's ability to pay for health care is directly linked to growth in the economy.

We have computed a regression relating provincial expenditure to gross domestic product. The results are provided below:

1. LOG (HEALTH EXPENDITURES/CAPITA) = -5.28 + 1.29 LOG (GDP/CAPITA)

$$R^2 = 0.9854$$

This equation compares favourably with studies done elsewhere. Culyer's 1971 study of 20 OECD countries has a parameter value of 1.31 (SEE TABLE 1). Equation 1 states that a 10 percent increase in GDP/CAPITA would result in a 12.9 percent increase in health expenditures per capita. Several authors have defined health as a luxury good based on the greater than 1 coefficient in equation 1.

Note that both provincial GDP and provincial health expenditures are measured in current dollars. Provincial health expenditures source was from the provincial Finance Revenue and Expenditures Account (A STATISTICS CANADA PUBLICATION). The inference being that as a luxury good, a reduction in health expenditures would not be as 'painful' to society as say a cutback in other goods. Classifying health expenditures as a luxury good based on equation 1 is rather presumptuous. The equation is too simplistic to award much theoretical justification. First, the equation is in current dollar form. Secondly, the causal relationship in equation 1 is not clearly understood.

Based on the R^2 statistics however, the equation is a good predictor of future health care expenditures. Using our gross domestic product and population projections we expect N.S. health expenditures in current dollars to grow by 8.66% per annum over the 1987-2001 period, as can be seen by observing table 2 in appendix II. Current dollar growth is composed of real dollar growth and inflationary growth (SEE DEFINITIONS). The next section which discusses inflationary impact will outline how much is due to real growth and how much is due to inflationary growth. Also shown in table 2 is the ratio of N.S. GDP TO N.S. health expenditure per annum. Over the historic period this ratio averaged 16.33. This means that between 1965 and 1986 provincial GDP was 16.33 times greater than provincial health expenditures on average. Over the forecast period provincial GDP is projected to be only 11.75 times greater than provincial health expenditures. Hence, provincial health expenditures are going to make-up a larger proportion of provincial GDP. This is also shown in table 2. The average of N.S. health expenditure as a percent of N.S. GDP is projected to grow from 6.41% over the historic period to 8.56% over the forecast period (1987-2001). This will be the case if health expenditures continue to follow their historic growth trends in the future.

INFLATION IMPACT

If we separate growth in Nova Scotia health expenditures into its real and inflationary components we find that historically, health care inflation rates have grown by 10.73% per year while the N.S. GDP inflation rate has grown by 9.4% per year over the 1971-84 period, as can be seen in table 3. This inflation rate for N.S. health and social services was calculated by taking N.S. health and social services GDP in current dollars and dividing it by N.S. health and social services GDP in constant dollars to obtain a N.S. health and social services GDP price index. By taking the average annual percentage change in this price index, one is able to come up with the inflation rate given above. The reason for comparing this inflation rate with the N.S. GDP inflation rate is so that we can compare our findings with those of Culyer, shown in table 4. In table 3, the N.S. health and social services inflation rate is compared with the N.S. GDP inflation rate. Hence in Nova Scotia, health inflation rates exceed the general inflation rates by 1.33%. Please note that this inflation rate is for the provincial health and social services GDP, which includes public hospitals, institutions, and other social services. For Canada, the inflation rate differential is much smaller with the GDP inflation rate exceeding the health inflation rate by 0.17%. This can be seen in table 4.

We have projected the expected inflation rate for health care expenditure by fitting a regression between the health care inflation index and the general inflation level in the economy. The equation is as follows:

2. HEALTH PRICE INDEX = -.076 + .718 * NSCPI + .43*PREVIOUS YEAR'S HEALTH PRICE INDEX
R^2 = 0.9950

Given the projected slowdown in N.S. CPI inflation rates over the forecast period, it is not surprising that we project a slowdown in health expenditure inflation rates to an annual average

rate of 4.54% over the forecast period, as shown in table 5. Table 5 also shows that the N.S. CPI as a ratio to the N.S. public health and social service price index will decline in the future because the latter index is expected to continue to grow faster than the former. Table 6 shows that hospital inflation rates move in unison with health inflation rates, as would be expected. The N.S. public hospital inflation rate was calculated in a similar fashion to the N.S. health and social services inflation rate.

One of the key components that makes up the inflation rates for health expenditures is salaries and wages. In Nova Scotia, salaries and wages represent 66.2% of total operating costs in hospitals, as shown in table 7.

A regression of the hospital average wage against the average wage in N.S. and hospital average wages lagged once proved to be a useful predictor. More specifically, we have:

N.S. HOSPITAL AVERAGE WAGE AND SALARY = -1177.2 + .524 * N.S. AVERAGE ANNUAL WAGE + .64*PREVIOUS YEAR'S N.S. HOSPITAL AVERAGE WAGE & SALARY

R^2 = 0.9942

Applying the equation to our forecast period, we expect the average wage and salary rate in N.S. hospitals to grow by an annual average of 5.29%.

N.S. FISCAL POSITION IN RELATION TO HEALTH EXPENDITURES

Between 1970 and 1986, total gross revenue for N.S. measured in current dollars grew at an annual average rate of 12.6%, while total gross expenditures for N.S. measured in current dollars increased at an annual average rate of 13.1%, as shown in table 13. With expenditure growth out-pacing revenue growth and being of a higher current dollar value as well, the N.S. deficit has continually increased over the above mentioned period. If the N.S. government wishes to reduce the deficit, then there are only two methods available: revenue enhancement and expenditure cuts. The second alternative could mean that expenditure cuts on health may be required. Over the period 1970-1986, N.S. health expenditures as a proportion of total N.S. expenditures remained fairly stable around the overall annual average of 24.6% (SEE TABLE 13). Federal transfers to the N.S. health sector have declined over this period showing that the N.S. government has an increasing proportion of the health expenditure burden on its own hands (SEE TABLE 14). In 1970, health transfers made up 43.5% of total N.S. health expenditures. In 1986 health transfers made up only 27.6% of total N.S. health expenditures. Please note that health transfers are cash transfers only (as opposed to tax transfers) and they are measured in current dollars.

Since a forecast of N.S. health expenditures in current dollars has already been mentioned, it would be meaningful to project total N.S. expenditure in current dollars in order to obtain an idea of the increasing need for cost control in the health sector.

As outlined earlier in the economic growth and population impact section, health expenditure in current dollars is expected to grow at an annual average rate of 8.66% over the period 1987-2001. By using the Canmac 1000 econometric model we were able to project total N.S. government expenditure on goods and services. Since government expenditure on goods and services is a major component of total N.S. expenditure, we were able to use its growth rate as a proxy for the growth rate in total N.S. expenditures. The results that were derived are shown in table 15. Total N.S. expenditure in current dollars is projected to increase at an annual average rate of 6.6% over the period 1987-2001.

The expected slowdown in expenditure growth in current dollars is due to slower population growth in the future and lower inflation rates. With these factors in mind, one would expect N.S. health expenditures in current dollars to comprise an increasing proportion of total N.S. expenditure in current dollars. As shown in table 15, health expenditures in current dollars are expected to make up 35.5% of total N.S. expenditures by the year 2001, if past trends in health expenditure growth continue. This is due to the fact that health expenditure in current dollars is projected to increase at a faster rate than total N.S. expenditure in current dollars. If this situation does occur, then other sectors will be forced to reduce expenditures in order to allow the health sector a greater share of total N.S. expenditures in current dollars. Obviously, there will be calls for the health sector to reduce its costs so as to maintain its historical share of total N.S. expenditures.

Up to this point in Section III we have limited the discussion to baseline forecasts. A review of these projections in light of pessimistic and optimistic scenarios is deemed essential to the overall analysis.

1. The Nova Scotia provincial government's health expenditure will be $3.26 billion, benchmark case, $2.97 billion pessimistic case or $4.03 billion under the optimistic scenario. In 1986, health expenditures by the Nova Scotia provincial government was 939.7 million current dollars.

2. The Nova Scotia health expenditure will represent 35.5 percent of the provincial budget by the year 2001 under benchmark case economic assumptions. The pessimistic outlook yields a figure of 31.9% and the optimistic projection predicts that 38.1% of the provincial budget will be absorbed by health expenditures.In 1986, health expenditures by the Nova Scotia provincial government represented 26.6 percent of the provincial budget.

3. The inflation rate for Nova Scotia health expenditure is projected to average 4.5 percent over the period 1985-2001, benchmark case, 4.69% pessimistic case or if the optimistic case prevails, 4.93 percent. The inflation rate for Nova Scotia health expenditure has been 1.33 percentage points greater than the Nova Scotia general inflation rate on average over the historical period 1971-1984. We expect this relationship to continue into the future with the gap between the two rates narrowing somewhat.

ECONOMIC IMPACT ON THE N.S. HEALTH SECTOR

	PESSIMISTIC	BENCHMARK	OPTIMISTIC
1. N.S. GOVERNMENT'S HEALTH EXPENDITURE (YEAR 2001, CURRENT DOLLARS)	2.97 BILLION	3.26 BILLION	4.03 BILLION
N.S. GOVERNMENT HEALTH EXPENDITURE (YEAR 1986, CURRENT DOLLARS)	939.7 MILLION	939.7 MILLION	939.7 MILLION
2. HEALTH EXPENDITURE BY N.S. GOVERNMENT AS A PERCENT OF PROVINCIAL BUDGET (YEAR 2001)	31.9	35.5	38.1
HEALTH EXPENDITURE BY N.S. GOVERNMENT AS A PERCENT OF PROVINCIAL BUDGET (YEAR 1986)	26.6	26.6	26.6
3. N.S. HEALTH EXPENDITURE AVERAGE ANNUAL INFLATION RATE (1985-2001)	4.69%	4.54%	4.93%

OTHER STRATEGIC TREND IMPACTS

Growth of the female labour force, growth in part-time employment, lower unemployment rates in the future, and growth in service sector employment will all have more of a qualitative impact on the N.S. health sector than a quantitative impact.

Future expansion of the female labour force will mean a greater demand for wage parity with their male counterparts. Hence, hospital administrators and health management officials can expect a greater demand for wage increases by female employees in order for them to catch up with their male counterparts. With more females in the labour force, one can expect a greater demand for part-time employment. Thus, we see how one economic trend influences another. Females will demand part-time employment because of their need to spend more time at home with their respective families.

An increase in part-time employees will signal the need for hospital management officials to promote job satisfaction. This will be required due to the fact that generally part-time workers have higher job turnover rates than full-time workers. If hospital administrators are to maintain high production levels and low turnover rates for their part-time employees, then they must be prepared to offer more benefits.

With lower unemployment rates in the future, a shortage of qualified hospital personnel available for work may develop. Hospital administrators will have to become more competitive with respect to wage and fringe benefit offers to potential employees in order to attract their attention and prevent them from going to other regions. If service sector employment in N.S. continues to grow, then hospital administrators must also ensure a comprehensive salary package to their office and clerical workers in order to keep them from moving to other service sector positions.

SECTION IV
SUMMARY AND CONCLUSIONS

SUMMARY AND CONCLUSIONS

With projected slow rates of growth and the advancing maturity of the baby boom component, we can expect an increase in the average age of our population. This should manifest itself in a greater demand for health care. A demand increase is a much welcomed boon to any private sector enterprise but poses special problems to the Canadian industry given its public structure of government support. The aging of our population will require an enhancement of expenditures in the future but considering this direct effect of population change alone would be dangerously naive.

With federal transfers to the Nova Scotia health care sector on a decline, the provincial government must assume responsibility for a greater share of the expense. The government's ability to pay for health care is directly linked to growth in the economy and projections indicate a slowing down of provincial gross domestic product growth rates. Exacerbating this are wage effects to be brought on by changes in labour force variables. Declining unemployment rates, expected higher participation rates by females leading to increased demand for wage parity with males and greater competition for labour with an expanding service sector should impose upward pressure on wage demands. Wages and salaries make up approximately 66% of total hospital operating costs and are expected to increase by 5.29% annually.

Conclusions are based on the general economic environment derived for Nova Scotia under three alternative scenarios discussed in section II. These outlooks yield little difference in the projected economic trends and their impact on the health care system. Nonetheless we reiterate the main findings of the report in context with these alternative scenarios.

1. The Nova Scotia provincial government's health expenditure will be $3.26 billion, benchmark case, $2.97 billion pessimistic case or $4.03 billion under the optimistic scenario. In 1986, health expenditures by the Nova Scotia provincial government was 939.7 million current dollars.

2. The Nova Scotia health expenditure will represent 35.5 percent of the provincial budget by the year 2001 under benchmark case economic assumptions. The pessimistic outlook yields a figure of 31.9% and the optimistic projection predicts that 38.1% of the provincial budget will be absorbed by health expenditures. In 1986, health expenditures by the Nova Scotia provincial government represented 26.6 percent of the provincial budget.

3. The inflation rate for Nova Scotia health expenditure is projected to average 4.5 percent over the period 1985-2001, benchmark case, 4.69% pessimistic case or if the optimistic case prevails, 4.93 percent. The inflation rate for Nova Scotia health expenditure has been 1.33 percentage points greater than the Nova Scotia general inflation rate on average over the historical period 1971-1984. We expect this relationship to continue into the future with the gap between the two rates narrowing somewhat.

APPENDIX I
DEFINITIONS

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1) **Consumer Price Index (CPI)** - The most accepted index number for the general price level. It is a weighted index whose calculation is based on a given basic consumption bundle of goods for a typical urban household.

2) **Cross-Sectional Model** - A data set which is composed of various observations for a specified individual unit, for a given period. Examples of individual units may be countries, cities, firms, income categories of individuals, sex of individuals, etc.

3) **Current Dollar Growth** - Dollar growth that is composed of real growth and inflationary growth.

4) **Econometrics** - The science of model building whereby a set of tools, most of them quantitative, are used to construct and then test mathematical representations of portions of the real world.

5) **Forecast** - A quantitative estimate about the likelihood of future events based on past and current information. This past and current information is embodied in the form of a model.

6) **Gross Domestic Product (GDP)** - The sum of the money values of all final goods and services produced by the national economy during a specified period.

7) **Inflation** - A sustained increase in the general price level.

8) **Operating Expense** - The cost, on accrual basis, of operating and maintaining the hospital during the year.

9) **Organization For Economic Co-operation and Development (OECD)** - A grouping of industrialized (developed) nations of the world.

10) Patient-Day - The period of service to an in-patient between the census-taking hows on two successive days; the day of admission is counted as a patient-day but the day of separation is not.

11) Per Capita - Occurs when a certain specified value is divided by the number of people (population) within a nation. In other words, the value is given in 'per person' terms.

12) Percentage Occupancy - The number of actual patient-days recorded during the year expressed as a percentage of the potential patient-days in that year based either on rated bed capacity or actual beds set up.

13) Public Hospitals - Those non-profit organizations that accept all patients regardless of ability to pay. This total number is composed of: 1) General teaching and non-teaching hospitals 2) Speciality hospitals 3) Rehabilitation hospitals 4) Extended care hospitals and 5) Nursing stations.

14) R^2 Statistic - The proportion of the total variation in Y (dependent or left-hand variable) explained by the regression of Y on X (the independent variable or right-hand side variable).

15) Real Growth - The amount of change in a specified value that is weighted according to prices for an agreed upon year (currently 1981). Hence, real growth discludes growth due to inflation.

16) Regression Analysis - A mathematical technique whereby an econometric equation is used to find the relationship between one or more independent variable (X's) and an independent variable (Y). By taking a sample set of actual values of X and Y one can fit a line through the actual points on a scatter diagram so as to minimize the sum of squared deviations of the predicted points, obtained from the regression analysis, from the actual points. The most well-known technique used is called the Ordinary Least Squares (OLS) method. The R^2 Statistic measures the goodness of fit of your regression line.

17) Salaries & Wages - This includes gross salaries and wages earned during the year by all hospital personnel.

18) Separation - The discharge or death of an in-patient.

19) Total Service Employment - The total number of persons employed in public hospitals at the end of a given period. This number is broken-down into 4 categories: 1) Nursing, 2) Diagnostic, Therapeutic, and Emergency, 3) Educational Programs, and 4) Administrative and Supportive.

APPENDIX I

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BIBLIOGRAPHY

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APPENDIX II

SECTION I: TABLES

TABLE 1

PERCENT CHANGE IN HEALTH CARE EXPENDITURES PER CAPITA/ PERCENT CHANGE IN NOVA SCOTIA PER CAPITA GDP

HISTORIC PERIOD	
1965-1986	+ 1.29
CULYER'S 1971 CROSS-SECTIONAL STUDY OF 20 OECD COUNTRIES	+ 1.31

TABLE 2

	HISTORIC PERIOD 1965-1986	PESSIMISTIC CASE	FORECAST PERIOD 1987-2001 BENCHMARK CASE	OPTIMISTIC CASE
AVERAGE PERCENT CHANGE IN N.S. HEALTH EXPENDITURES PER ANNUM	14.79%	7.97%	8.66%	10.20%
AVERAGE PERCENT CHANGE IN N.S. GDP PER ANNUM	11.18%	6.30%	6.83%	8.03%
AVERAGE OF N.S. GDP OVER N.S. HEALTH EXPENDITURES PER ANNUM	16.33	11.84%	11.75	11.55%
AVERAGE OF N.S. HEALTH EXPENDITURE AS A PERCENT OF N.S. GDP	6.41%	8.49%	8.56%	8.73%

TABLE 3

	N.S. PUBLIC HEALTH & SOCIAL SERVICES	N.S. GDP	AVG. DIFFERENTIAL (NSGDP - N.S. HEALTH)
AVG. REAL GROWTH (1971-1984)	3.40%	2.9%	-0.50%
AVG. INFLATION (1971-1984)	10.73%	9.4%	-1.33%

TABLE 4

CULYER'S FINDINGS

	CANADA HEALTH	CANADA GDP	AVG. DIFFERENTIAL (CDN.GDP-CDN HEALTH)
AVG. REAL GROWTH (1971-1980)	2.50%	2.67%	+0.10%
AVG. INFLATION (1971-1980)	9.40%	9.57%	+0.17%

TABLE 5
COMPARISON OF N.S. PUBLIC HEALTH & SOCIAL SERVICES INFLATION RATE WITH N.S. GENERAL INFLATION RATE

BENCHMARK CASE

	N.S. PUBLIC HEALTH & SOCIAL	N.S. CPI	NSCPI OVER N.S. HEALTH PRICE INDEX[1]
AVG. INFLATION (1971-1984)	10.73%	8.35%	1.016%
PREDICTED AVG. INFLATION (1985-2001)	4.54%	4.21%	0.872%

OPTIMISTIC CASE

AVG. INFLATION (1971-1984)	10.73%	8.35%	1.016%
PREDICTED AVG. INFLATION (1985-2001)	4.93%	4.61%	0.873%

PESSIMISTIC CASE

AVG. INFLATION (1971-1984)	10.73%	8.35%	1.016%
PREDICTED AVG. INFLATION (1985-2001)	4.69%	4.45%	0.872%

1 -- THESE NUMBERS ARE CALCULATED BASED ON THE AVERAGE OF THE SUM OF THIS RATION OFR THE TWO PERIODS AND NOT ON THE RATIO OF THE AVERAGES.

TABLE 6
N.S PUBLIC HOSPTIALS INFLATION RATES

BENCHMARK CASE

	N.S. PUBLIC HOSPITALS
AVG. INFLATION (1971-1984)	10.79%
PREDICTED AVG. INFLATION (1985-2001)	5.15%

PESSIMISTIC CASE

AVG. INFLATION (1971-1984)	10.79%
PREDICTED AVG. INFLATION (1985-2001)	5.24%

OPTIMISTIC CASE

AVG. INFLATION (1971-1984)	10.79%
PREDICTED AVG. INFLATION (1985-2001)	5.59%

TABLE 7

PUBLIC HOSPITALS

	1971-1986 AVERAGE % CHANGE
TOTAL OPERATING EXPENSES/ PATIENT-DAY CANADA	11.64%
TOTAL OPERATING EXPENSES/ PATIENT-DAY NOVA SCOTIA	13.31%
TOTAL GROSS SALARIES & WAGES/PATIENT DAY CANADA	11.15%
TOTAL GROSS SALARIES & WAGES/PATIENT DAY NOVA SCOTIA	13.88%

	1971-1986 AVERAGE
GROSS SALARIES & WAGES/ PATIENT DAY AS A PERCENT OF OPERATING EXPENSES/PATIENT DAY CANADA	69.89%
GROSS SALARIES & WAGES/ PATIENT DAY AS A PERCENT OF OPERATING EXPENSES/PATIENT DAY NOVA SCOTIA	66.24%

TABLE 8
GROWTH OF COSTS IN N.S. PUBLIC HOSPTIALS

BENCHMARK CASE

	1987-2001 AVERAGE PERCENT CHANGE
TOTAL OPERATING EXPENSES/ PATIENT DAY NOVA SCOTIA	4.84%
TOTAL GROSS SALARIES & WAGES/ PATIENT DAY NOVA SCOTIA	4.94%
	1987-2001 AVERAGE
GROSS SALARIES & WAGES/PATIENT DAY AS A PERCENT OF OPERATING EXPENSES/ PATIENT DAY NOVA SCOTIA	67.81%

PESSIMISTIC CASE

	1987-2001 AVERAGE PERCENT CHANGE
TOTAL OPERATING EXPENSES/ PATIENT DAY NOVA SCOTIA	4.94%
TOTAL GROSS SALARIES & WAGES/ PATIENT DAY NOVA SCOTIA	5.03%
	1987-2001 AVERAGE
GROSS SALARIES & WAGES/ PATIENT DAY AS A PERCENT OF OPERATING EXPENSES/ PATIENT DAY NOVA SCOTIA	67.80%

OPTIMISTIC CASE

	1987-2001 AVERAGE PERCENT CHANGE
TOTAL OPERATING EXPENSES/PATIENT DAY NOVA SCOTIA	5.32%
TOTAL GROSS SALARIES & WAGES/ PATIENT DAY NOVA SCOTIA	5.41%

	1987-2001 AVERAGE
GROSS SALARIES & WAGES/PATIENT DAY AS A PERCENT OF OPERATING EXPENSES/ PATIENT DAY NOVA SCOTIA	67.76%

TABLE 9

PERCENT OCCUPANCY–APPROVED BED COMPLEMENT

	CANADA	NOVA SCOTIA
AVERAGE PERCENT OCCUPANCY (1971-1986)	81.07%	74.66%

TABLE 10

	HISTORIC PERIOD (1965-1986)	FORECAST PERIOD (1987-2001)
AVG. ANNUAL RATE OF TOTAL N.S. POPULATION GROWTH	0.69%	0.66%
AVG. ANNUAL RATE OF N.S. POPULATION > = 65 GROWTH	2.19%	1.20%

TABLE 11

N.S. POPULATION >=65 AS A PROPORTION OF TOTAL N.S. POPULATION

1966	8.90%
1986	11.89%
2001	13.3%

TABLE 12

N.S. HOSPITAL EXPENDITURE AS A PROPORTION OF TOTAL N.S. HEALTH & SOCIAL SERVICES EXPENDITURE

1971	85.35%
1984	76.19%
AVG. (1971-1984)	80.88%

CANADIAN HOSPITAL EXPENDITURE AS A PROPORTION OF TOTAL CANADIAN HEALTH & SOCIAL SERVICES

1971	58.90%
1984	65.31%
AVG. (1971-1984)	59.97%

TABLE 13

	N.S. TOTAL PATIENT DAYS/TOTAL SERVICE EMPLOYMENT LEVELS IN N.S. PUBLIC HOSPITALS
1971	129.38
1984	94.87
AVERAGE (1971-1984)	105.63

	CANADA TOTAL PATIENT DAYS/TOTAL SERVICE EMPLOYMENT LEVELS IN CANADA PUBLIC HOSPITALS
1971	131.26
1984	122.40
AVERAGE (1971-1984)	124.59

TABLE 13

PROVINCIAL FISCAL POSITION IN RELATION TO HEALTH EXPENDITURE

YEAR	TOTAL N.S. REVENUE 000 CURR$	PERCENT CHANGE	TOTAL N.S. EXPENDITURE 000 CURR$	PERCENT CHANGE	DEFICIT 000 CURR$	HEALTH EXPENDITURE 000 CURR$	PERCENT CHANGE	HEALTH AS % TOTAL N.S. EXPENDITURE
1970	467451	10.34%	504363	13.25%	-36912	127479	8.44%	25.28%
1971	555052	18.74%	566306	12.28%	-11254	143924	12.90%	25.41%
1972	628711	13.27%	638344	12.72%	-9633	159384	10.74%	24.97%
1973	778796	23.87%	785159	23.00%	-6363	182035	14.21%	23.18%
1974	903528	16.02%	911737	16.12%	-8209	228204	25.36%	25.03%
1975	1060369	17.36%	1117470	22.56%	-57101	277636	21.66%	24.85%
1976	1208749	13.99%	1237071	10.70%	-28322	303496	9.31%	24.53%
1977	1343730	11.17%	1452147	17.39%	-108417	387513	27.68%	26.69%
1978	1494757	11.24%	1655602	14.01%	-160845	369580	-4.63%	22.32%
1979	1684471	12.69%	1751228	5.78%	-66757	407900	10.37%	23.29%
1980	1898567	12.71%	2041912	16.60%	-143345	472700	15.89%	23.15%
1981	2178750	14.76%	2597770	27.22%	-419020	592900	25.43%	22.82%
1982	2333751	7.11%	2729488	5.07%	-395737	671661	13.28%	24.61%
1983	2598632	11.35%	2942813	7.82%	-344181	734239	9.32%	24.95%
1984	2809700	8.12%	3238100	10.03%	-428400	803620	9.45%	24.82%
1985	2945200	4.82%	3342200	3.21%	-397000	854300	6.31%	25.56%
1986	3141900	6.68%	3527200	5.54%	-385300	939700	10.00%	26.64%
AVERAGE		12.60%		13.14%			13.28%	24.59%

TABLE 14

FEDERAL HEALTH TRANSFERS TO N.S.

YEAR	HEALTH TRANSFERS 000 CURR$	PERCENT CHANGE	TRANSFERS AS % HEALTH EXPENDITURE
1970	55484		43.52%
1971	65443	17.95%	45.47%
1972	72058	10.11%	45.21%
1973	80904	12.28%	44.44%
1974	93405	15.45%	40.93%
1975	111094	18.94%	40.01%
1976	126435	13.81%	41.66%
1977	103941	-17.79%	26.82%
1978	135887	30.73%	36.77%
1979	152261	12.05%	37.33%
1980	168635	10.75%	35.67%
1981	176800	4.84%	29.82%
1982	177200	0.23%	26.38%
1983	208400	17.61%	28.38%
1984	248400	19.19%	30.91%
1985	252700	1.73%	29.58%
1986	259700	2.77%	27.64%
1987	267600	3.04%	
1988	278300	4.00%	
AVERAGE		10.67%	35.92%

SOURCE: STATISTICS CANADA

TABLE 15.1

PROJECTED PROVINCIAL EXPENDITURES
BENCHMARK CASE

YEAR	N.S.HEALTH EXPENDITURE 000 CURR$	PERCENT CHANGE	TOTAL N.S. EXPENDITURE 000 CURR$	PERCENT CHANGE	HEALTH AS % TOTAL N.S. EXPENDITURE
1987	1024004.13	8.97%	3592453	1.85%	28.50%
1988	1090862.93	6.53%	3879849	8.00%	28.12%
1989	1173459.79	7.57%	4159975	7.22%	28.21%
1990	1261423.26	7.50%	4476549	7.61%	28.18%
1991	1378822.63	9.31%	4811842	7.49%	28.65%
1992	1497817.30	8.63%	5191978	7.90%	28.85%
1993	1625808.84	8.55%	5581376	7.50%	29.13%
1994	1768477.81	8.78%	5987700	7.28%	29.54%
1995	1930937.07	9.19%	6406240	6.99%	30.14%
1996	2109308.55	9.24%	6838021	6.74%	30.85%
1997	2297233.26	8.91%	7281809	6.49%	31.55%
1998	2506548.18	9.11%	7738378	6.27%	32.39%
1999	2739150.98	9.28%	8208098	6.07%	33.37%
2000	2990364.35	9.17%	8690734	5.88%	34.41%
2001	3264709.12	9.17%	9187844	5.72%	35.53%
AVERAGE		8.66%		6.60%	30.49%

SOURCE: CANMAC ECONOMICS

TABLE 15.2

PROJECTED PROVINCIAL EXPENDITURES
OPTIMISTIC CASE

YEAR	N.S.HEALTH EXPENDITURE 000 CURR$	PERCENT CHANGE	TOTAL N.S. EXPENDITURE 000 CURR$	PERCENT CHANGE	HEALTH AS % TOTAL N.S. EXPENDITURE
1987	1024004.13	8.97%	3592453	1.85%	28.50%
1988	1090862.93	6.53%	3879849	8.00%	28.12%
1989	1174925.41	7.71%	4163854	7.32%	28.22%
1990	1261428.24	7.36%	4476560	7.51%	28.18%
1991	1413302.33	12.04%	4892432	9.29%	28.89%
1992	1569987.42	11.09%	5355746	9.47%	29.31%
1993	1743341.51	11.04%	5840441	9.05%	29.85%
1994	1936671.22	11.09%	6347391	8.68%	30.51%
1995	2148435.52	10.93%	6877398	8.35%	31.24%
1996	2386380.07	11.08%	7431029	8.05%	32.11%
1997	2643654.12	10.78%	8009163	7.78%	33.01%
1998	2934145.92	10.99%	8612253	7.53%	34.07%
1999	3261531.05	11.16%	9240947	7.30%	35.29%
2000	3623730.41	11.11%	9897054	7.10%	36.61%
2001	4026775.41	11.12%	10581930	6.92%	38.05%
AVERAGE		10.20%		7.61%	31.46%

SOURCE: CANMAC ECONOMICS

TABLE 15.3

PROJECTED PROVINCIAL EXPENDITURES
PESSIMISTIC CASE

YEAR	N.S.HEALTH EXPENDITURE 000 CURR$	PERCENT CHANGE	TOTAL N.S. EXPENDITURE 000 CURR$	PERCENT CHANGE	HEALTH AS % TOTAL N.S. EXPENDITURE
1987	1024004.13	8.97%	3592453	1.85%	28.50%
1988	1090862.93	6.53%	3879849	8.00%	28.12%
1989	1174925.41	7.71%	4163854	7.32%	28.22%
1990	1260693.99	7.30%	4484888	7.71%	28.11%
1991	1361580.50	8.00%	4826188	7.61%	28.21%
1992	1471374.92	8.06%	5214213	8.04%	28.22%
1993	1590009.45	8.06%	5615707	7.70%	28.31%
1994	1718085.46	8.06%	6030147	7.38%	28.49%
1995	1857043.05	8.09%	6457684	7.09%	28.76%
1996	2007569.94	8.11%	6898744	6.83%	29.10%
1997	2170938.55	8.14%	7352681	6.58%	29.53%
1998	2347180.49	8.12%	7819576	6.35%	30.02%
1999	2537803.71	8.12%	8299698	6.14%	30.58%
2000	2744228.19	8.13%	8793531	5.95%	31.21%
2001	2967551.65	8.14%	9302676	5.79%	31.90%
AVERAGE		7.97%		6.69%	29.15%

SOURCE: CANMAC ECONOMICS

APPENDIX III

REFERENCE TABLES

APPENDIX IIIA

BENCHMARK CASE DETAILED TABLES

N.S. PROVINCIAL GPP - BENCHMARK CASE JUNE 1/1989

	1988	1989	1990	1991	1992	1993	1994
CONSUMPTION MM 81$	7488.28	7743.53	7932.70	8086.37	8278.49	8453.87	8630.40
PERCENT CHANGE	1.00%	3.41%	2.44%	1.94%	2.38%	2.12%	2.09%
FED. EXPEND. ON G&S MM 81$	1460.86	1496.30	1534.44	1579.18	1635.37	1692.59	1751.39
PERCENT CHANGE	2.75%	2.43%	2.55%	2.92%	3.56%	3.50%	3.47%
PROV. EXPEND.ON G&S MM 81$	784.37	811.41	839.11	865.10	895.54	923.99	950.44
PERCENT CHANGE	4.33%	3.45%	3.41%	3.10%	3.52%	3.18%	2.86%
LOCAL EXPEND.ON G&S MM 81$	1146.92	1183.79	1219.59	1253.89	1289.66	1325.22	1359.62
PERCENT CHANGE	3.55%	3.21%	3.02%	2.81%	2.85%	2.76%	2.60%
INVESTMENT MM 81$	2579.90	2566.93	2558.05	2749.79	2748.99	2750.29	2747.15
PERCENT CHANGE	1.73%	-0.50%	-0.35%	7.50%	-0.03%	0.05%	-0.11%
EXPORTS TO WORLD MM 81$	1564.49	1625.06	1648.04	1719.41	1783.49	1849.11	1932.44
PERCENT CHANGE	3.00%	3.87%	1.41%	4.33%	3.73%	3.68%	4.51%
EXPORTS TO CANADA MM 81$	2844.80	2907.57	2955.55	3029.89	3105.25	3186.72	3263.34
PERCENT CHANGE	4.13%	2.21%	1.65%	2.52%	2.49%	2.62%	2.40%
IMPORTS MM 81$	8210.99	8469.60	8758.72	9175.40	9488.59	9789.81	10087.35
PERCENT CHANGE	3.58%	3.15%	3.41%	4.76%	3.41%	3.17%	3.04%
RESID. CONSTRUCTION MM 81$	716.65	702.93	692.27	682.55	675.56	670.01	661.11
PERCENT CHANGE	-4.52%	-1.91%	-1.52%	-1.40%	-1.02%	-0.82%	-1.33%
NON-RESID.CONSTRUCT.MM 81$	814.21	819.34	824.26	831.52	838.65	845.82	853.25
PERCENT CHANGE	0.36%	0.63%	0.60%	0.88%	0.86%	0.86%	0.88%
N.S. GPP MM 81$	9708.63	9914.99	10078.77	10358.23	10598.20	10841.98	11097.44
PERCENT CHANGE	1.61%	2.13%	1.65%	2.77%	2.32%	2.30%	2.36%

N.S. PROVINCIAL GPP - BENCHMARK CASE JUNE 1/1989

	1995	1996	1997	1998	1999	2000	2001
CONSUMPTION MM 81$	8807.88	8994.01	9187.54	9376.00	9570.37	9772.99	9977.52
PERCENT CHANGE	2.06%	2.11%	2.15%	2.05%	2.07%	2.12%	2.09%
FED. EXPEND. ON G&S MM 81$	1811.62	1873.41	1937.23	2002.77	2070.05	2139.34	2210.68
PERCENT CHANGE	3.44%	3.41%	3.41%	3.38%	3.36%	3.35%	3.33%
PROV. EXPEND.ON G&S MM 81$	974.85	997.35	1017.90	1036.61	1053.54	1068.76	1082.44
PERCENT CHANGE	2.57%	2.31%	2.06%	1.84%	1.63%	1.44%	1.28%
LOCAL EXPEND.ON G&S MM 81$	1392.28	1422.93	1451.39	1477.63	1501.65	1523.50	1543.28
PERCENT CHANGE	2.40%	2.20%	2.00%	1.81%	1.63%	1.45%	1.30%
INVESTMENT MM 81$	2753.04	2765.10	2706.97	2722.70	2738.56	2756.98	2773.98
PERCENT CHANGE	0.21%	0.44%	-2.10%	0.58%	0.58%	0.67%	0.62%
EXPORTS TO WORLD MM 81$	2018.26	2106.66	2197.71	2291.49	2388.09	2487.58	2590.06
PERCENT CHANGE	4.44%	4.38%	4.32%	4.27%	4.22%	4.17%	4.12%
EXPORTS TO CANADA MM 81$	3373.31	3487.12	3604.92	3726.84	3853.02	3983.62	4118.79
PERCENT CHANGE	3.37%	3.37%	3.38%	3.38%	3.39%	3.39%	3.39%
IMPORTS MM 81$	10390.65	10703.39	10929.15	11205.20	11521.98	11807.67	12092.55
PERCENT CHANGE	3.01%	3.01%	2.11%	2.53%	2.83%	2.48%	2.41%
RESID. CONSTRUCTION MM 81$	657.77	658.35	665.04	668.11	670.81	675.19	678.43
PERCENT CHANGE	-0.51%	0.09%	1.02%	0.46%	0.40%	0.65%	0.48%
NON-RESID.CONSTRUCT.MM 81$	861.53	870.26	873.69	887.50	896.85	906.30	915.93
PERCENT CHANGE	0.97%	1.01%	0.97%	1.00%	1.05%	1.05%	1.06%
N.S. GPP MM 81$	11390.60	11693.20	11974.51	12278.83	12603.29	12925.10	13254.19
PERCENT CHANGE	2.64%	2.66%	2.41%	2.54%	2.64%	2.55%	2.55%

N.S. INCOME & LABOUR FORCE DATA - BENCHMARK CASE JUNE 1/1989

	1988	1989	1990	1991	1992	1993	1994
CORPORATE PROFITS MM CURR$	726.62	763.58	795.75	832.08	868.51	905.22	942.82
PERCENT CHANGE	5.92%	5.09%	4.21%	4.57%	4.38%	4.23%	4.15%
WAGES,SAL.& SUPP.INC.MM81$	6065.23	6366.27	6521.15	6640.30	6806.49	6947.28	7088.59
PERCENT CHANGE	7.15%	4.96%	2.43%	1.83%	2.50%	2.07%	2.03%
AVG. WEEKLY WAGE 81$	295.56	299.09	301.64	304.08	306.02	307.84	309.61
PERCENT CHANGE	0.78%	1.19%	0.85%	0.81%	0.64%	0.60%	0.58%
N.S. PDI MM 81$	7662.67	7956.64	8174.50	8351.48	8572.74	8774.71	8978.03
PERCENT CHANGE	1.05%	3.84%	2.74%	2.16%	2.65%	2.36%	2.32%
U.I.C. MM 81$	300.77	307.60	319.72	313.81	316.71	314.77	310.58
PERCENT CHANGE	-17.12%	2.27%	3.94%	-1.85%	0.92%	-0.61%	-1.33%
TRANS.& OTHER INCOME MM81$	3478.27	3564.55	3675.56	3770.34	3876.94	3981.79	4087.61
PERCENT CHANGE	-7.63%	2.48%	3.11%	2.58%	2.83%	2.70%	2.66%
INCOME TAXES MM 81$	1880.83	1974.18	2022.21	2059.16	2110.69	2154.35	2198.17
PERCENT CHANGE	2.05%	4.96%	2.43%	1.83%	2.50%	2.07%	2.03%
EMPLOYMENT (000'S)	365.98	371.16	375.27	382.29	388.31	394.43	400.84
PERCENT CHANGE	4.57%	1.42%	1.11%	1.87%	1.58%	1.58%	1.63%
LABOUR FORCE (000'S)	407.61	413.66	419.32	425.58	431.98	437.85	443.72
PERCENT CHANGE	2.16%	1.49%	1.37%	1.49%	1.50%	1.36%	1.34%
#OF PERSONS UNEMPLOY.000'S	41.62	42.50	44.05	43.29	43.66	43.42	42.88
PERCENT CHANGE	-15.05%	2.10%	3.65%	-1.72%	0.86%	-0.57%	-1.24%
N.S. UNEMPLOYMENT RATE	10.21%	10.27%	10.51%	10.17%	10.11%	9.92%	9.66%
PERCENT CHANGE	-16.84%	0.61%	2.25%	-3.16%	-0.64%	-1.90%	-2.54%
N.S. CPI 1981=1.0	1.4140	1.4674	1.5290	1.5960	1.6659	1.7379	1.8147
PERCENT CHANGE	3.67%	3.77%	4.20%	4.39%	4.38%	4.32%	4.42%

N.S. INCOME & LABOUR FORCE DATA - BENCHMARK CASE JUNE 1/1989

	1995	1996	1997	1998	1999	2000	2001
CORPORATE PROFITS MM CURR$	993.24	1025.94	1068.70	1112.91	1159.20	1207.15	1255.43
PERCENT CHANGE	4.29%	4.34%	4.17%	4.14%	4.16%	4.14%	4.00%
WAGES,SAL.& SUPP.INC.MM81$	7234.90	7397.83	7565.81	7726.05	7897.56	8079.51	8261.96
PERCENT CHANGE	2.06%	2.25%	2.27%	2.12%	2.22%	2.30%	2.26%
AVG. WEEKLY WAGE 81$	311.36	313.08	314.81	316.53	318.27	320.01	321.75
PERCENT CHANGE	0.56%	0.55%	0.55%	0.55%	0.55%	0.55%	0.54%
N.S. PDI MM 81$	9182.42	9396.79	9619.67	9836.71	10060.56	10293.92	10529.47
PERCENT CHANGE	2.28%	2.33%	2.37%	2.26%	2.28%	2.32%	2.29%
U.I.C. MM 81$	300.72	285.96	272.74	255.41	233.42	209.88	184.27
PERCENT CHANGE	-3.17%	-4.91%	-4.62%	-6.35%	-8.61%	-10.09%	-12.20%
TRANS.& OTHER INCOME MM81$	4191.06	4293.03	4400.02	4506.51	4612.03	4719.86	4829.54
PERCENT CHANGE	2.53%	2.43%	2.49%	2.42%	2.34%	2.34%	2.32%
INCOME TAXES MM 81$	2243.54	2294.07	2346.16	2395.85	2449.03	2505.46	2562.03
PERCENT CHANGE	2.06%	2.25%	2.27%	2.12%	2.22%	2.30%	2.26%
EMPLOYMENT (000'S)	408.20	415.79	422.86	430.49	438.64	446.72	454.98
PERCENT CHANGE	1.84%	1.86%	1.70%	1.81%	1.89%	1.84%	1.85%
LABOUR FORCE (000'S)	449.82	455.52	460.89	466.31	471.64	476.70	481.68
PERCENT CHANGE	1.37%	1.27%	1.18%	1.18%	1.14%	1.07%	1.04%
#OF PERSONS UNEMPLOY.000'S	41.62	39.73	38.04	35.82	33.00	29.98	26.71
PERCENT CHANGE	-2.94%	-4.54%	-4.26%	-5.84%	-7.86%	-9.14%	-10.94%
N.S. UNEMPLOYMENT RATE	9.25%	8.72%	8.25%	7.68%	7.00%	6.29%	5.54%
PERCENT CHANGE	-4.26%	-5.74%	-5.37%	-6.93%	-8.90%	-10.10%	-11.86%
N.S. CPI 1981=1.0	1.8949	1.9789	2.0666	2.1582	2.2540	2.3540	2.4586
PERCENT CHANGE	4.42%	4.43%	4.43%	4.43%	4.44%	4.44%	4.44%

APPENDIX: TABLE 1

YEAR	N.S. LABOUR FORCE (000'	PCT. CHANGE	N.S. EMPLOYMENT (000'S	PCT. CHANGE	N.S. POP. (000'S)*	PCT. CHANGE	N.S. GDP (MM 81$)	PCT. CHANGE
1965	242		229		756		4593.5	
1966	251	3.72%	239	4.37%	756	0.00%	4747.5	3.35%
1967	257	2.39%	245	2.51%	760	0.53%	5020.0	5.74%
1968	261	1.56%	248	1.22%	767	0.92%	5236.5	4.31%
1969	267	2.30%	254	2.42%	775	1.04%	5468.8	4.44%
1970	271	1.50%	256	0.79%	782	0.90%	5635.9	3.06%
1971	276	1.85%	256	0.00%	789	0.90%	5789.1	2.72%
1972	280	1.45%	261	1.95%	794.6	0.71%	6107.3	5.50%
1973	295	5.36%	275	5.36%	804.3	1.22%	6467.5	5.90%
1974	313	6.10%	292	6.18%	811.5	0.90%	6695.6	3.53%
1975	317	1.28%	292	0.00%	819.5	0.99%	6749.9	0.81%
1976	322	1.58%	292	0.00%	828.6	1.11%	6962.6	3.15%
1977	327	1.55%	292	0.00%	833.4	0.58%	7113.8	2.17%
1978	338	3.36%	306	4.79%	837.5	0.49%	7323.8	2.95%
1979	346	2.37%	311	1.63%	841.8	0.51%	8012.8	9.41%
1980	356	2.89%	321	3.22%	845.1	0.39%	7932.6	-1.00%
1981	359	0.84%	322	0.31%	847.4	0.27%	7343.0	-7.43%
1982	361	0.56%	313	-2.80%	849.5	0.25%	7668.1	4.43%
1983	369	2.22%	320	2.24%	857	0.88%	8095.3	5.57%
1984	385	4.34%	335	4.69%	864.4	0.86%	8759.1	8.20%
1985	385	0.00%	333	-0.60%	871	0.76%	9100.5	3.90%
1986	392	1.82%	341	2.40%	873.2	0.25%	9541.9	4.85%
1987	399	1.79%	350	2.64%	876.8	0.41%	9498.6	-0.45%
1988	412	3.26%	364	4.00%	881.1	0.49%	9928.1	4.52%
1989	417	1.21%	370	1.65%	885.3	0.48%	10167.5	2.41%
1990	422	1.20%	375	1.35%	890	0.53%	10343.8	1.73%
1991	427	1.18%	383	2.13%	894.6	0.52%	10623.3	2.70%
1992	431	0.94%	390	1.83%	899.3	0.53%	10841.1	2.05%
1993	435	0.93%	398	2.05%	903.8	0.50%	1123.4	-89.64%
1994	439	0.92%	404	1.51%	908.1	0.48%	11341.8	909.60%
1995	444	1.14%	410	1.49%	912.3	0.46%	11544.1	1.78%
1996	447	0.68%	415	1.22%	916.4	0.45%	11743.8	1.73%
1997	451	0.89%	419	0.96%	920.3	0.43%	11915.8	1.46%
1998	454	0.67%	424	1.19%	923.9	0.39%	12121.7	1.73%
1999	457	0.66%	429	1.18%	927.3	0.37%	12345.1	1.84%
2000	460	0.66%	434	1.17%	930.5	0.35%	12549.7	1.66%
2001	463	0.65%	440	1.38%	933.5	0.32%	12783.3	1.86%

*FORECASTED POPULATION 1989-2001
IS SOURCED FROM THE DEPT. OF
INDUSTRY, TRADE & TECHNOLOGY

APPENDIX: TABLE 2

YEAR	SERVICE SECTOR AS % OF N.S. LABOUR	PCT. CHANGE	FEMALE AS % OF N.S. LABOUR FORCE	PCT. CHANGE	PART-TIME EMPLOYMENT AS % OF N.S. EMPLOYMENT	PCT. CHANGE
1975	59.6%		36.3%		10.3%	
1976	61.0%	2.35%	36.6%	0.83%	11.0%	6.80%
1977	62.0%	1.64%	37.6%	2.73%	11.6%	5.45%
1978	61.4%	-0.97%	38.5%	2.39%	11.6%	0.00%
1979	62.2%	1.30%	38.4%	-0.26%	11.9%	2.59%
1980	63.2%	1.61%	39.6%	3.13%	12.8%	7.56%
1981	65.2%	3.16%	40.7%	2.78%	14.0%	9.38%
1982	65.0%	-0.31%	41.0%	0.74%	14.6%	4.29%
1983	65.9%	1.38%	41.5%	1.22%	15.3%	4.79%
1984	66.4%	0.76%	42.4%	2.17%	15.5%	1.31%
1985	65.6%	-1.20%	41.9%	-1.18%	15.4%	-0.65%
1986	66.1%	0.76%	42.5%	1.43%	15.9%	3.25%
1987	66.6%	0.76%	42.4%	-0.24%	16.0%	0.63%
1988	67.9%	1.95%	43.6%	2.83%	15.5%	-3.13%
1989	68.5%	0.88%	44.4%	1.83%	17.2%	10.97%
1990	69.1%	0.88%	44.9%	1.13%	17.7%	2.91%
1991	69.6%	0.72%	45.5%	1.34%	18.2%	2.82%
1992	70.3%	1.01%	46.0%	1.10%	18.7%	2.75%
1993	70.8%	0.71%	46.6%	1.30%	19.1%	2.14%
1994	71.4%	0.85%	47.2%	1.29%	19.6%	2.62%
1995	72.0%	0.84%	47.7%	1.06%	20.1%	2.55%
1996	72.6%	0.83%	48.3%	1.26%	20.6%	2.49%
1997	73.2%	0.83%	48.8%	1.04%	21.0%	1.94%
1998	73.7%	0.68%	49.4%	1.23%	21.5%	2.38%
1999	74.3%	0.81%	49.9%	1.01%	22.0%	2.33%
2000	74.9%	0.81%	50.5%	1.20%	22.5%	2.27%
2001	75.5%	0.80%	51.0%	0.99%	22.9%	1.78%

SOURCE: CANMAC ECONOMICS

TABLE 3
PROJECTED AGE DISTRIBUTION
OF THE N.S. POPULATION *

AGE GROUP	1986	PERCENT OF TOTAL	1991	PERCENT OF TOTAL	2001	PERCENT OF TOTAL
0-4	60130	6.89%	61267	6.85%	54101	5.80%
5-9	61025	6.99%	59982	6.70%	58364	6.25%
10-14	66190	7.58%	60920	6.81%	62260	6.67%
15-19	71885	8.23%	66016	7.38%	61017	6.54%
20-24	81545	9.34%	71668	8.01%	63542	6.81%
25-29	78080	8.94%	80306	8.98%	68532	7.34%
30-34	71605	8.20%	76422	8.54%	70656	7.57%
35-39	68055	7.79%	70018	7.83%	77115	8.26%
40-44	52935	6.06%	66378	7.42%	73199	7.84%
45-49	42990	4.92%	51932	5.80%	67106	7.19%
50-54	39845	4.56%	42510	4.75%	64129	6.87%
55-59	37790	4.33%	38740	4.33%	49860	5.34%
60-64	37235	4.26%	36038	4.03%	39527	4.23%
65-69	34595	3.96%	34296	3.83%	34387	3.68%
70-74	28695	3.29%	30098	3.36%	29566	3.17%
75-79	19630	2.25%	23074	2.58%	24766	2.65%
80-84	11655	1.33%	14036	1.57%	18279	1.96%
85-89	5915	0.68%	7139	0.80%	10902	1.17%
90+	3345	0.38%	3792	0.42%	6160	0.66%
TOTAL	873145	100.00%	894632	100.00%	933468	100.00%

* SOURCE: DEPT. OF INDUSTRY, TRADE, & TECHNOLOGY. SUBJECT TO REVISION DUE TO ERROR IN ESTIMATING BIRTHS.

TABLE 4

HISTORIC PERIOD

YEAR	PROVINCIAL EXPENDITURE ON HEALTH (000'S CURRENT $)	PERCENTAGE CHANGE
1965	55757	
1966	63475	13.84%
1967	68851	8.47%
1968	81395	18.22%
1969	117553	44.42%
1970	127479	8.44%
1971	143924	12.90%
1972	159384	10.74%
1973	182035	14.21%
1974	228204	25.36%
1975	277636	21.66%
1976	303496	9.31%
1977	387513	27.68%
1978	369580	-4.63%
1979	407900	10.37%
1980	472700	15.89%
1981	592900	25.43%
1982	671661	13.28%
1983	734239	9.32%
1984	803620	9.45%
1985	854300	6.31%
1986	939700	10.00%
AVERAGE		14.79%

BENCHMARK CASE

PROJECTION PERIOD

YEAR	PROVINCIAL EXPENDITURE ON HEALTH (000'S CURRENT $)	PERCENTAGE CHANGE
1987	1024004	8.97%
1988	1090861	6.53%
1989	1173460	7.57%
1990	1261423	7.50%
1991	1378823	9.31%
1992	1497817	8.63%
1993	1625809	8.55%
1994	1768478	8.78%
1995	1930937	9.19%
1996	2109309	9.24%
1997	2297233	8.91%
1998	2506548	9.11%
1999	2739151	9.28%
2000	2990364	9.17%
2001	3264709	9.17%
AVERAGE		8.66%

TABLE 5

HISTORIC PERIOD

YEAR	PROVINCIAL GROSS DOMESTIC PRODUCT HEALTH PRICE INDEX	PROVINCIAL GDP HEALTH INFLATION RATE
1971	0.3637	
1972	0.3910	7.51%
1973	0.4326	10.65%
1974	0.4967	14.80%
1975	0.5949	19.78%
1976	0.6792	14.18%
1977	0.6868	1.12%
1978	0.7471	8.77%
1979	0.8084	8.20%
1980	0.9106	12.64%
1981	1.0000	9.82%
1982	1.1665	16.65%
1983	1.2646	8.41%
1984	1.3525	6.95%
AVERAGE		10.73%

BENCHMARK CASE

PROJECTION PERIOD

YEAR	PROVINCIAL GROSS DOMESTIC PRODUCT HEALTH PRICE INDEX	PROVINCIAL GDP HEALTH INFLATION RATE
1985	1.4214	5.09%
1986	1.4827	4.31%
1987	1.5429	4.06%
1988	1.6048	4.01%
1989	1.6696	4.04%
1990	1.7421	4.34%
1991	1.8215	4.56%
1992	1.9061	4.64%
1993	1.9943	4.63%
1994	2.0877	4.68%
1995	2.1855	4.68%
1996	2.2873	4.66%
1997	2.3951	4.71%
1998	2.5071	4.68%
1999	2.6243	4.67%
2000	2.7468	4.67%
2001	2.8750	4.67%

TABLE 6

YEAR	HISTORICAL PERIOD AVERAGE GROSS SALARIES & WAGES OF N.S. HOSPITAL EMPLOYEES	PERCENTAGE CHANGE
1971	4963.07	
1972	5528.22	11.39%
1973	6060.90	9.64%
1974	6876.84	13.46%
1975	8185.39	19.03%
1976	9224.68	12.70%
1977	10442.72	13.20%
1978	11811.15	13.10%
1979	12676.51	7.33%
1980	13735.38	8.35%
1981	14950.13	8.84%
1982	18089.55	21.00%
1983	19532.83	7.98%
1984	21659.35	10.89%
	AVERAGE	12.07%

BENCHMARK CASE

YEAR	PROJECTION PERIOD AVERAGE GROSS SALARIES & WAGES OF N.S. HOSPITAL EMPLOYEES	PERCENTAGE CHANGE
1985	22945.83	5.94%
1986	24151.30	5.25%
1987	25195.80	4.32%
1988	26353.37	4.59%
1989	27663.10	4.97%
1990	29113.65	5.24%
1991	30699.86	5.45%
1992	32384.16	5.49%
1993	34149.75	5.45%
1994	36005.86	5.44%
1995	37968.69	5.45%
1996	40031.59	5.43%
1997	42201.33	5.42%
1998	44473.11	5.38%
1999	46863.37	5.37%
2000	49372.89	5.35%
2001	52013.40	5.35%
	AVERAGE	5.29%

APPENDIX IIIB
PESSIMISTIC SCENARIO DETAILED TABLES

N.S. PROVINCIAL GPP - PESSIMISTIC CASE JUNE 1/1989

	1988	1989	1990	1991	1992	1993	1994
CONSUMPTION MM 81$	7488.28	7743.56	7934.94	8097.53	8267.65	8434.73	8603.68
PERCENT CHANGE	1.00%	3.41%	2.47%	2.05%	2.10%	2.02%	2.00%
FED. EXPEND. ON G&S MM 81$	1460.86	1496.30	1534.67	1580.50	1637.25	1695.05	1754.53
PERCENT CHANGE	2.75%	2.43%	2.56%	2.99%	3.59%	3.53%	3.51%
PROV. EXPEND.ON G&S MM 81$	784.37	811.41	839.11	865.10	895.54	923.99	950.44
PERCENT CHANGE	4.33%	3.45%	3.41%	3.10%	3.52%	3.18%	2.86%
LOCAL EXPEND.ON G&S MM 81$	1146.92	1183.79	1219.59	1253.89	1289.66	1325.22	1359.62
PERCENT CHANGE	3.55%	3.21%	3.02%	2.81%	2.85%	2.76%	2.60%
INVESTMENT MM 81$	2579.90	2566.93	2557.42	2549.81	2546.53	2545.46	2539.70
PERCENT CHANGE	1.73%	-0.50%	-0.37%	-0.30%	-0.13%	-0.04%	-0.23%
EXPORTS TO WORLD MM 81$	1564.49	1625.06	1648.04	1699.57	1752.13	1805.74	1860.42
PERCENT CHANGE	3.00%	3.87%	1.41%	3.13%	3.09%	3.06%	3.03%
EXPORTS TO CANADA MM 81$	2844.80	2907.57	2955.55	3012.23	3070.05	3129.02	3189.17
PERCENT CHANGE	4.13%	2.21%	1.65%	1.92%	1.92%	1.92%	1.92%
IMPORTS MM 81$	8210.99	8469.62	8684.41	8882.07	9101.45	9319.33	9533.95
PERCENT CHANGE	3.58%	3.15%	2.54%	2.28%	2.47%	2.39%	2.30%
RESID. CONSTRUCTION MM 81$	716.65	702.93	692.27	682.55	675.56	670.01	661.11
PERCENT CHANGE	-4.52%	-1.91%	-1.52%	-1.40%	-1.02%	-0.82%	-1.33%
NON-RESID.CONSTRUCT.MM 81$	814.21	819.34	823.77	828.64	833.84	839.17	844.56
PERCENT CHANGE	0.36%	0.63%	0.54%	0.59%	0.63%	0.64%	0.64%
N.S. GPP MM 81$	9708.63	9915.00	10054.91	10226.57	10407.36	10589.88	10773.61
PERCENT CHANGE	1.61%	2.13%	1.41%	1.71%	1.77%	1.75%	1.73%

N.S. PROVINCIAL GPP - PESSIMISTIC CASE JUNE 1/1989

	1995	1996	1997	1998	1999	2000	2001
CONSUMPTION MM 81$	8774.97	8947.07	9121.61	9300.14	9481.09	9664.69	9852.05
PERCENT CHANGE	1.99%	1.96%	1.95%	1.96%	1.95%	1.94%	1.94%
FED. EXPEND. ON G&S MM 81$	1815.74	1878.55	1943.12	2009.60	2077.97	2148.28	2220.65
PERCENT CHANGE	3.49%	3.46%	3.44%	3.42%	3.40%	3.38%	3.37%
PROV. EXPEND.ON G&S MM 81$	974.85	997.35	1017.90	1036.61	1053.54	1068.76	1082.44
PERCENT CHANGE	2.57%	2.31%	2.06%	1.84%	1.63%	1.44%	1.28%
LOCAL EXPEND.ON G&S MM 81$	1392.28	1422.93	1451.39	1477.63	1501.65	1523.50	1543.28
PERCENT CHANGE	2.40%	2.20%	2.00%	1.81%	1.63%	1.45%	1.30%
INVESTMENT MM 81$	2542.01	2550.04	2566.95	2578.80	2590.20	2604.12	2616.52
PERCENT CHANGE	0.09%	0.32%	0.66%	0.46%	0.44%	0.54%	0.48%
EXPORTS TO WORLD MM 81$	1916.20	1973.09	2031.12	2090.31	2150.68	2212.26	2275.07
PERCENT CHANGE	3.00%	2.97%	2.94%	2.91%	2.89%	2.86%	2.84%
EXPORTS TO CANADA MM 81$	3250.52	3313.10	3376.93	3442.04	3508.45	3576.18	3645.28
PERCENT CHANGE	1.92%	1.93%	1.93%	1.93%	1.93%	1.93%	1.93%
IMPORTS MM 81$	9754.90	9979.04	10209.95	10438.42	10666.78	10897.59	11128.93
PERCENT CHANGE	2.32%	2.30%	2.31%	2.24%	2.19%	2.16%	2.12%
RESID. CONSTRUCTION MM 81$	657.77	658.35	665.04	668.11	670.81	675.19	678.43
PERCENT CHANGE	-0.51%	0.09%	1.02%	0.46%	0.40%	0.65%	0.48%
NON-RESID.CONSTRUCT.MM 81$	850.06	855.66	861.39	867.19	873.06	879.02	885.07
PERCENT CHANGE	0.65%	0.66%	0.67%	0.67%	0.68%	0.68%	0.69%
N.S. GPP MM 81$	10961.66	11153.08	11349.06	11546.70	11746.79	11950.20	12156.36
PERCENT CHANGE	1.75%	1.75%	1.76%	1.74%	1.73%	1.73%	1.73%

N.S. INCOME & LABOUR FORCE DATA - PESSIMISTIC CASE JUNE 1/1989

	1988	1989	1990	1991	1992	1993	1994
CORPORATE PROFITS MM CURR$	726.62	763.58	794.30	823.21	851.56	879.71	907.80
PERCENT CHANGE	5.92%	5.09%	4.02%	3.64%	3.44%	3.31%	3.19%
WAGES,SAL.& SUPP.INC.MM81$	6065.23	6366.33	6520.07	6632.35	6749.67	6863.99	6977.77
PERCENT CHANGE	7.15%	4.96%	2.41%	1.72%	1.77%	1.69%	1.66%
AVG. WEEKLY WAGE 81$	295.56	299.03	301.73	304.04	305.85	307.62	309.34
PERCENT CHANGE	0.78%	1.18%	0.90%	0.76%	0.60%	0.58%	0.56%
N.S. PDI MM 81$	7662.67	7956.67	8177.07	8364.33	8560.26	8752.68	8947.25
PERCENT CHANGE	1.05%	3.84%	2.77%	2.29%	2.34%	2.25%	2.22%
U.I.C. MM 81$	300.77	307.60	323.04	332.14	343.43	350.19	356.25
PERCENT CHANGE	-17.12%	2.27%	5.02%	2.82%	3.40%	1.97%	1.73%
TRANS.& OTHER INCOME MM81$	3478.27	3564.55	3678.88	3788.67	3903.66	4017.21	4133.29
PERCENT CHANGE	-7.63%	2.48%	3.21%	2.98%	3.04%	2.91%	2.89%
INCOME TAXES MM 81$	1880.83	1974.20	2021.87	2056.69	2093.07	2128.52	2163.80
PERCENT CHANGE	2.05%	4.96%	2.41%	1.72%	1.77%	1.69%	1.66%
EMPLOYMENT (000'S)	365.98	371.16	374.67	378.98	383.52	388.10	392.71
PERCENT CHANGE	4.57%	1.42%	0.95%	1.15%	1.20%	1.19%	1.19%
LABOUR FORCE (000'S)	407.61	413.66	419.15	424.62	430.61	436.05	441.44
PERCENT CHANGE	2.16%	1.49%	1.33%	1.31%	1.41%	1.26%	1.24%
#OF PERSONS UNEMPLOY.000'S	41.62	42.50	44.48	45.64	47.09	47.95	48.73
PERCENT CHANGE	-15.05%	2.10%	4.65%	2.62%	3.17%	1.84%	1.62%
N.S. UNEMPLOYMENT RATE	10.21%	10.27%	10.61%	10.75%	10.94%	11.00%	11.04%
PERCENT CHANGE	-16.84%	0.61%	3.28%	1.30%	1.73%	0.57%	0.38%
N.S. CPI 1981=1.0	1.4140	1.4688	1.5320	1.6012	1.6735	1.7491	1.8281
PERCENT CHANGE	3.67%	3.87%	4.30%	4.51%	4.52%	4.52%	4.52%

N.S. INCOME & LABOUR FORCE DATA - PESSIMISTIC CASE JUNE 1/1989

	1995	1996	1997	1998	1999	2000	2001
CORPORATE PROFITS MM CURR$	936.11	964.77	993.91	1023.44	1053.36	1083.70	1114.48
PERCENT CHANGE	3.12%	3.06%	3.02%	2.97%	2.92%	2.88%	2.84%
WAGES,SAL.& SUPP.INC.MM81$	7091.92	7208.19	7326.43	7447.52	7570.24	7695.14	7822.53
PERCENT CHANGE	1.64%	1.64%	1.64%	1.65%	1.65%	1.65%	1.66%
AVG. WEEKLY WAGE 81$	311.04	312.71	314.39	316.07	317.76	319.46	321.15
PERCENT CHANGE	0.55%	0.54%	0.54%	0.53%	0.53%	0.53%	0.53%
N.S. PDI MM 81$	9144.52	9342.73	9543.73	9749.35	9957.74	10169.19	10384.97
PERCENT CHANGE	2.20%	2.17%	2.15%	2.15%	2.14%	2.12%	2.12%
U.I.C. MM 81$	361.46	362.73	361.96	360.20	356.42	350.34	342.93
PERCENT CHANGE	1.46%	0.35%	-0.21%	-0.48%	-1.05%	-1.71%	-2.11%
TRANS.& OTHER INCOME MM81$	4251.81	4369.80	4489.23	4611.30	4735.04	4860.32	4988.20
PERCENT CHANGE	2.97%	2.78%	2.73%	2.72%	2.68%	2.65%	2.63%
INCOME TAXES MM 81$	2199.20	2235.26	2271.93	2309.48	2347.53	2386.26	2425.77
PERCENT CHANGE	1.64%	1.64%	1.64%	1.65%	1.65%	1.65%	1.66%
EMPLOYMENT (000'S)	397.43	402.24	407.16	412.12	417.14	422.25	427.42
PERCENT CHANGE	1.20%	1.21%	1.22%	1.22%	1.22%	1.22%	1.23%
LABOUR FORCE (000'S)	446.83	451.80	456.62	461.35	465.89	470.22	474.44
PERCENT CHANGE	.1.22%	1.11%	1.07%	1.04%	0.98%	0.93%	0.90%
#OF PERSONS UNEMPLOY.000'S	49.40	49.56	49.46	49.23	48.75	47.97	47.02
PERCENT CHANGE	1.37%	0.33%	-0.20%	-0.45%	-0.98%	-1.60%	-1.98%
N.S. UNEMPLOYMENT RATE	11.05%	10.97%	10.83%	10.67%	10.46%	10.20%	9.91%
PERCENT CHANGE	0.15%	-0.77%	-1.25%	-1.48%	-1.95%	-2.50%	-2.85%
N.S. CPI 1981=1.0	1.9107	1.9970	2.0872	2.1814	2.2798	2.3827	2.4903
PERCENT CHANGE	4.52%	4.52%	4.52%	4.51%	4.51%	4.51%	4.51%

TABLE A2

PROJECTED PROVINCIAL EXPENDITURES
PESSIMISTIC CASE

YEAR	N.S.HEALTH EXPENDITURE 000 CURR$	PERCENT CHANGE	TOTAL N.S. EXPENDITURE 000 CURR$	PERCENT CHANGE	HEALTH AS % TOTAL N.S. EXPENDITURE
1987	1024004.13	8.97%	3592453	1.85%	28.50%
1988	1090862.93	6.53%	3879849	8.00%	28.12%
1989	1174925.41	7.71%	4163854	7.32%	28.22%
1990	1260693.99	7.30%	4484888	7.71%	28.11%
1991	1361580.50	8.00%	4826188	7.61%	28.21%
1992	1471374.92	8.06%	5214213	8.04%	28.22%
1993	1590009.45	8.06%	5615707	7.70%	28.31%
1994	1718085.46	8.06%	6030147	7.38%	28.49%
1995	1857043.05	8.09%	6457684	7.09%	28.76%
1996	2007569.94	8.11%	6898744	6.83%	29.10%
1997	2170938.55	8.14%	7352681	6.58%	29.53%
1998	2347180.49	8.12%	7819576	6.35%	30.02%
1999	2537803.71	8.12%	8299698	6.14%	30.58%
2000	2744228.19	8.13%	8793531	5.95%	31.21%
2001	2967551.65	8.14%	9302676	5.79%	31.90%
AVERAGE		7.97%		6.69%	29.15%

SOURCE: CANMAC ECONOMICS

TABLE A4

HISTORIC PERIOD

YEAR	PROVINCIAL EXPENDITURE ON HEALTH (000'S CURRENT $)	PERCENTAGE CHANGE
1965	55757	
1966	63475	13.84%
1967	68851	8.47%
1968	81395	18.22%
1969	117553	44.42%
1970	127479	8.44%
1971	143924	12.90%
1972	159384	10.74%
1973	182035	14.21%
1974	228204	25.36%
1975	277636	21.66%
1976	303496	9.31%
1977	387513	27.68%
1978	369580	-4.63%
1979	407900	10.37%
1980	472700	15.89%
1981	592900	25.43%
1982	671661	13.28%
1983	734239	9.32%
1984	803620	9.45%
1985	854300	6.31%
1986	939700	10.00%
	AVERAGE	14.79%

PESSIMISTIC CASE

PROJECTION PERIOD

YEAR	PROVINCIAL EXPENDITURE ON HEALTH (000'S CURRENT $)	PERCENTAGE CHANGE
1987	1024004	8.97%
1988	1090863	6.53%
1989	1174925	7.71%
1990	1260694	7.30%
1991	1361581	8.00%
1992	1471375	8.06%
1993	1590009	8.06%
1994	1718085	8.06%
1995	1857043	8.09%
1996	2007570	8.11%
1997	2170939	8.14%
1998	2347180	8.12%
1999	2537804	8.12%
2000	2744228	8.13%
2001	2967552	8.14%
	AVERAGE	7.97%

SOURCE: ACTUAL-STATISTICS CANADA.PROJECTIONS-CANMAC ECONOMICS

TABLE A6

HISTORIC PERIOD

YEAR	PROVINCIAL GROSS DOMESTIC PRODUCT HEALTH PRICE INDEX	PROVINCIAL GDP HEALTH INFLATION RATE
1971	0.3637	
1972	0.3910	7.51%
1973	0.4326	10.65%
1974	0.4967	14.80%
1975	0.5949	19.78%
1976	0.6792	14.18%
1977	0.6868	1.12%
1978	0.7471	8.77%
1979	0.8084	8.20%
1980	0.9106	12.64%
1981	1.0000	9.82%
1982	1.1665	16.65%
1983	1.2646	8.41%
1984	1.3525	6.95%
AVERAGE		10.73%

PESSIMISTIC CASE

PROJECTION PERIOD

YEAR	PROVINCIAL GROSS DOMESTIC PRODUCT HEALTH PRICE INDEX	PROVINCIAL GDP HEALTH INFLATION RATE
1985	1.4214	5.09%
1986	1.4827	4.31%
1987	1.5429	4.06%
1988	1.6048	4.01%
1989	1.6711	4.13%
1990	1.7449	4.42%
1991	1.8263	4.67%
1992	1.9139	4.80%
1993	2.0056	4.79%
1994	2.1019	4.80%
1995	2.2031	4.81%
1996	2.3085	4.78%
1997	2.4187	4.77%
1998	2.5337	4.75%
1999	2.6545	4.77%
2000	2.7806	4.75%
2001	2.9119	4.72%
AVERAGE		4.61%

SOURCE: ACTUAL-STATISTICS CANADA.PROJECTIONS-CANMAC ECONOMICS

TABLE A8

HISTORICAL PERIOD

YEAR	AVERAGE GROSS SALARIES & WAGES OF N.S. HOSPITAL EMPLOYEES	PERCENTAGE CHANGE
1971	4963.07	
1972	5528.22	11.39%
1973	6060.90	9.64%
1974	6876.84	13.46%
1975	8185.39	19.03%
1976	9224.68	12.70%
1977	10442.72	13.20%
1978	11811.15	13.10%
1979	12676.51	7.33%
1980	13735.38	8.35%
1981	14950.13	8.84%
1982	18089.55	21.00%
1983	19532.83	7.98%
1984	21659.35	10.89%
	AVERAGE	12.07%

PESSIMISTIC CASE

PROJECTION PERIOD

YEAR	AVERAGE GROSS SALARIES & WAGES OF N.S. HOSPITAL EMPLOYEES	PERCENTAGE CHANGE
1985	22945.83	5.94%
1986	24151.30	5.25%
1987	25195.80	4.32%
1988	26353.37	4.59%
1989	27677.06	5.02%
1990	29151.08	5.33%
1991	30763.61	5.53%
1992	32483.91	5.59%
1993	34295.56	5.58%
1994	36203.9	5.56%
1995	38214.76	5.55%
1996	40322.64	5.52%
1997	42535.45	5.49%
1998	44858.27	5.46%
1999	47303.89	5.45%
2000	49872.86	5.43%
2001	52564.72	5.40%
	AVERAGE	5.35%

SOURCE: ACTUAL-STATISTICS CANADA.PROJECTIONS-CANMAC ECONOMICS

APPENDIX IIIC

OPTIMISTIC SCENARIO DETAILED TABLES

N.S. PROVINCIAL GPP - OPTIMISTIC CASE JUNE 1/1989

	1988	1989	1990	1991	1992	1993	1994
CONSUMPTION MM 81$	7488.28	7743.56	7932.70	8076.93	8291.68	8492.89	8711.87
PERCENT CHANGE	1.00%	3.41%	2.44%	1.82%	2.66%	2.43%	2.58%
FED. EXPEND. ON G&S MM 81$	1460.86	1496.30	1534.44	1578.34	1633.90	1690.60	1749.93
PERCENT CHANGE	2.75%	2.43%	2.55%	2.86%	3.52%	3.47%	3.51%
PROV. EXPEND. ON G&S MM81$	784.37	811.41	839.11	873.42	912.18	948.94	983.71
PERCENT CHANGE	4.33%	3.45%	3.41%	4.09%	4.44%	4.03%	3.66%
LOCAL EXPEND.ON G&S MM 81$	1146.92	1183.79	1219.59	1258.26	1300.91	1344.82	1388.40
PERCENT CHANGE	3.55%	3.21%	3.02%	3.17%	3.39%	3.37%	3.24%
INVESTMENT MM 81$	2579.90	2566.93	2558.05	2853.07	2866.66	2882.79	2894.72
PERCENT CHANGE	1.73%	-0.50%	-0.35%	11.53%	0.48%	0.56%	0.41%
EXPORTS TO WORLD MM 81$	1564.49	1625.06	1648.04	1763.98	1885.14	2011.74	2144.05
PERCENT CHANGE	3.00%	3.87%	1.41%	7.03%	6.87%	6.72%	6.58%
EXPORTS TO CANADA MM 81$	2844.80	2907.57	2955.55	3083.08	3216.35	3355.62	3501.15
PERCENT CHANGE	4.13%	2.21%	1.65%	4.31%	4.32%	4.33%	4.34%
IMPORTS MM 81$	8210.99	8469.62	8758.72	9255.41	9607.65	9951.87	10306.59
PERCENT CHANGE	3.58%	3.15%	3.41%	5.67%	3.81%	3.58%	3.56%
RESID. CONSTRUCTION MM 81$	716.65	702.93	692.27	682.55	675.56	670.01	661.11
PERCENT CHANGE	-4.52%	-1.91%	-1.52%	-1.40%	-1.02%	-0.82%	-1.33%
NON-RESID.CONSTRUCT.MM 81$	814.21	819.34	824.26	834.07	844.60	855.54	866.90
PERCENT CHANGE	0.36%	0.63%	0.60%	1.19%	1.26%	1.29%	1.33%
N.S. GPP MM 81$	9708.63	9915.00	10078.77	10481.67	10849.17	11225.54	11617.24
PERCENT CHANGE	1.61%	2.13%	1.65%	4.00%	3.51%	3.47%	3.49%

N.S. PROVINCIAL GPP - OPTIMISTIC CASE JUNE 1/1989

	1995	1996	1997	1998	1999	2000	2001
CONSUMPTION MM 81$	8920.13	9118.77	9327.21	9530.80	9749.61	9991.24	10236.70
PERCENT CHANGE	2.39%	2.23%	2.29%	2.18%	2.30%	2.48%	2.46%
FED. EXPEND. ON G&S MM 81$	1809.86	1870.78	1933.65	1998.12	2064.84	2134.35	2205.82
PERCENT CHANGE	3.42%	3.37%	3.36%	3.33%	3.34%	3.37%	3.35%
PROV. EXPEND. ON G&S MM81$	1016.44	1047.26	1076.12	1103.15	1128.40	1151.94	1173.94
PERCENT CHANGE	3.33%	3.03%	2.76%	2.51%	2.29%	2.09%	1.91%
LOCAL EXPEND.ON G&S MM 81$	1430.71	1471.30	1509.86	1546.30	1580.56	1612.68	1642.76
PERCENT CHANGE	3.05%	2.84%	2.62%	2.41%	2.22%	2.03%	1.87%
INVESTMENT MM 81$	2864.72	2890.98	2847.29	2877.73	2908.65	2942.55	2975.43
PERCENT CHANGE	-1.04%	0.92%	-1.51%	1.07%	1.07%	1.17%	1.12%
EXPORTS TO WORLD MM 81$	2282.31	2426.79	2577.77	2735.54	2900.42	3072.71	3252.76
PERCENT CHANGE	6.45%	6.33%	6.22%	6.12%	6.03%	5.94%	5.86%
EXPORTS TO CANADA MM 81$	3653.23	3812.16	3978.23	4151.78	4333.15	4522.67	4720.72
PERCENT CHANGE	4.34%	4.35%	4.36%	4.36%	4.37%	4.37%	4.38%
IMPORTS MM 81$	10619.40	10965.53	11226.72	11538.59	11898.90	12240.08	12582.15
PERCENT CHANGE	3.04%	3.26%	2.38%	2.78%	3.12%	2.87%	2.79%
RESID. CONSTRUCTION MM 81$	657.77	658.35	665.04	668.11	670.81	675.19	678.43
PERCENT CHANGE	-0.51%	0.09%	1.02%	0.46%	0.40%	0.65%	0.48%
NON-RESID.CONSTRUCT.MM 81$	878.38	890.39	902.26	914.74	928.02	941.73	955.92
PERCENT CHANGE	1.32%	1.37%	1.33%	1.38%	1.45%	1.48%	1.51%
N.S. GPP MM 81$	12007.99	12422.51	12823.41	13254.84	13716.74	14188.08	14675.98
PERCENT CHANGE	3.36%	3.45%	3.23%	3.36%	3.48%	3.44%	3.44%

N.S. INCOME & LABOUR FORCE DATA - OPTIMISTIC CASE JUNE 1/1989

	1988	1989	1990	1991	1992	1993	1994
CORPORATE PROFITS MM CURR$	726.62	763.58	795.75	839.59	888.28	940.42	995.58
PERCENT CHANGE	5.92%	5.09%	4.21%	5.51%	5.80%	5.87%	5.87%
WAGES,SAL.& SUPP.INC.MM81$	6065.23	6366.33	6521.15	6640.30	6855.86	7048.84	7245.25
PERCENT CHANGE	7.15%	4.96%	2.43%	1.83%	3.25%	2.81%	2.79%
AVG. WEEKLY WAGE 81$	295.56	299.03	301.64	303.98	305.85	307.62	309.34
PERCENT CHANGE	0.78%	1.18%	0.87%	0.78%	0.61%	0.58%	0.56%
N.S. PDI MM 81$	7662.67	7956.67	8174.50	8340.61	8587.93	8819.66	9071.85
PERCENT CHANGE	1.05%	3.84%	2.74%	2.03%	2.97%	2.70%	2.86%
U.I.C. MM 81$	300.77	307.60	319.72	302.94	297.85	289.64	296.32
PERCENT CHANGE	-17.12%	2.27%	3.94%	-5.25%	-1.68%	-2.75%	2.30%
TRANS.& OTHER INCOME MM81$	3478.27	3564.55	3675.56	3759.46	3858.07	3956.66	4073.35
PERCENT CHANGE	-7.63%	2.48%	3.11%	2.28%	2.62%	2.56%	2.95%
INCOME TAXES MM 81$	1880.83	1974.20	2022.21	2059.16	2126.00	2185.85	2246.75
PERCENT CHANGE	2.05%	4.96%	2.43%	1.83%	3.25%	2.81%	2.79%
EMPLOYMENT (000'S)	365.98	371.16	375.27	385.39	394.61	404.06	413.89
PERCENT CHANGE	4.57%	1.42%	1.11%	2.69%	2.39%	2.39%	2.43%
LABOUR FORCE (000'S)	407.61	413.66	419.32	427.29	435.86	444.26	454.94
PERCENT CHANGE	2.16%	1.49%	1.37%	1.90%	2.01%	1.93%	2.41%
#OF PERSONS UNEMPLOY.000'S	41.62	42.50	44.05	41.90	41.25	40.20	41.05
PERCENT CHANGE	-15.05%	2.10%	3.65%	-4.88%	-1.56%	-2.55%	2.13%
N.S. UNEMPLOYMENT RATE	10.21%	10.27%	10.51%	9.81%	9.46%	9.05%	9.02%
PERCENT CHANGE	-16.84%	0.61%	2.25%	-6.65%	-3.49%	-4.39%	-0.27%
N.S. CPI 1981=1.0	1.4140	1.4688	1.5290	1.6085	1.6893	1.7742	1.8632
PERCENT CHANGE	3.67%	3.87%	4.10%	5.20%	5.03%	5.02%	5.02%

N.S. INCOME & LABOUR FORCE DATA - OPTIMISTIC CASE JUNE 1/1989

	1995	1996	1997	1998	1999	2000	2001
CORPORATE PROFITS MM CURR$	1052.49	1111.90	1171.98	1234.32	1299.88	1367.94	1438.51
PERCENT CHANGE	5.72%	5.64%	5.40%	5.32%	5.31%	5.24%	5.16%
WAGES,SAL.& SUPP.INC.MM81$	7448.91	7653.38	7869.46	8081.60	8308.79	8551.44	8800.49
PERCENT CHANGE	2.81%	2.74%	2.82%	2.70%	2.81%	2.92%	2.91%
AVG. WEEKLY WAGE 81$	311.04	312.71	314.39	316.07	317.76	319.46	321.15
PERCENT CHANGE	0.55%	0.54%	0.54%	0.53%	0.53%	0.53%	0.53%
N.S. PDI MM 81$	9311.70	9540.47	9780.52	10015.00	10266.99	10545.27	10827.97
PERCENT CHANGE	2.64%	2.46%	2.52%	2.40%	2.52%	2.71%	2.68%
U.I.C. MM 81$	282.35	253.33	224.10	188.40	156.14	135.66	111.24
PERCENT CHANGE	-4.71%	-10.28%	-11.54%	-15.93%	-17.12%	-13.12%	-18.00%
TRANS.& OTHER INCOME MM81$	4172.69	4260.40	4351.38	4439.50	4534.76	4645.64	4756.51
PERCENT CHANGE	2.44%	2.10%	2.14%	2.03%	2.15%	2.45%	2.39%
INCOME TAXES MM 81$	2309.91	2373.31	2440.32	2506.11	2576.56	2651.80	2729.03
PERCENT CHANGE	2.81%	2.74%	2.82%	2.70%	2.81%	2.92%	2.91%
EMPLOYMENT (000'S)	423.70	434.10	444.16	454.99	466.59	478.42	490.66
PERCENT CHANGE	2.37%	2.46%	2.32%	2.44%	2.55%	2.54%	2.56%
LABOUR FORCE (000'S)	462.96	469.65	475.97	482.23	489.69	498.90	508.02
PERCENT CHANGE	1.76%	1.44%	1.35%	1.31%	1.55%	1.88%	1.83%
#OF PERSONS UNEMPLOY.000'S	39.26	35.55	31.81	27.23	23.10	20.48	17.35
PERCENT CHANGE	-4.36%	-9.46%	-10.53%	-14.37%	-15.17%	-11.36%	-15.27%
N.S. UNEMPLOYMENT RATE	8.48%	7.57%	6.68%	5.65%	4.72%	4.11%	3.42%
PERCENT CHANGE	-6.01%	-10.75%	-11.72%	-15.49%	-16.46%	-12.99%	-16.79%
N.S. CPI 1981=1.0	1.9567	2.0549	2.1579	2.2662	2.3798	2.4992	2.6244
PERCENT CHANGE	5.02%	5.02%	5.02%	5.02%	5.01%	5.01%	5.01%

TABLE A1

PROJECTED PROVINCIAL EXPENDITURES
OPTIMISTIC CASE

YEAR	N.S.HEALTH EXPENDITURE 000 CURR$	PERCENT CHANGE	TOTAL N.S. EXPENDITURE 000 CURR$	PERCENT CHANGE	HEALTH AS % TOTAL N.S. EXPENDITURE
1987	1024004.13	8.97%	3592453	1.85%	28.50%
1988	1090862.93	6.53%	3879849	8.00%	28.12%
1989	1174925.41	7.71%	4163854	7.32%	28.22%
1990	1261428.24	7.36%	4476560	7.51%	28.18%
1991	1413302.33	12.04%	4892432	9.29%	28.89%
1992	1569987.42	11.09%	5355746	9.47%	29.31%
1993	1743341.51	11.04%	5840441	9.05%	29.85%
1994	1936671.22	11.09%	6347391	8.68%	30.51%
1995	2148435.52	10.93%	6877398	8.35%	31.24%
1996	2386380.07	11.08%	7431029	8.05%	32.11%
1997	2643654.12	10.78%	8009163	7.78%	33.01%
1998	2934145.92	10.99%	8612253	7.53%	34.07%
1999	3261531.05	11.16%	9240947	7.30%	35.29%
2000	3623730.41	11.11%	9897054	7.10%	36.61%
2001	4026775.41	11.12%	10581930	6.92%	38.05%
AVERAGE		10.20%		7.61%	31.46%

SOURCE: CANMAC ECONOMICS

TABLE A3

HISTORIC PERIOD

YEAR	PROVINCIAL EXPENDITURE ON HEALTH (000'S CURRENT $)	PERCENTAGE CHANGE
1965	55757	
1966	63475	13.84%
1967	68851	8.47%
1968	81395	18.22%
1969	117553	44.42%
1970	127479	8.44%
1971	143924	12.90%
1972	159384	10.74%
1973	182035	14.21%
1974	228204	25.36%
1975	277636	21.66%
1976	303496	9.31%
1977	387513	27.68%
1978	369580	-4.63%
1979	407900	10.37%
1980	472700	15.89%
1981	592900	25.43%
1982	671661	13.28%
1983	734239	9.32%
1984	803620	9.45%
1985	854300	6.31%
1986	939700	10.00%
AVERAGE		14.79%

OPTIMISTIC CASE

PROJECTION PERIOD

YEAR	PROVINCIAL EXPENDITURE ON HEALTH (000'S CURRENT $)	PERCENTAGE CHANGE
1987	1024004	8.97%
1988	1090863	6.53%
1989	1174925	7.71%
1990	1261428	7.36%
1991	1413302	12.04%
1992	1569987	11.09%
1993	1743342	11.04%
1994	1936671	11.09%
1995	2148436	10.93%
1996	2386380	11.08%
1997	2643654	10.78%
1998	2934146	10.99%
1999	3261531	11.16%
2000	3623730	11.11%
2001	4026775	11.12%
AVERAGE		10.20%

SOURCE: ACTUAL-STATISTICS CANADA.PROJECTIONS-CANMAC ECONOMICS

TABLE A5

HISTORIC PERIOD

YEAR	PROVINCIAL GROSS DOMESTIC PRODUCT HEALTH PRICE INDEX	PROVINCIAL GDP HEALTH INFLATION RATE
1971	0.3637	
1972	0.3910	7.51%
1973	0.4326	10.65%
1974	0.4967	14.80%
1975	0.5949	19.78%
1976	0.6792	14.18%
1977	0.6868	1.12%
1978	0.7471	8.77%
1979	0.8084	8.20%
1980	0.9106	12.64%
1981	1.0000	9.82%
1982	1.1665	16.65%
1983	1.2646	8.41%
1984	1.3525	6.95%
AVERAGE		10.73%

OPTIMISTIC CASE

PROJECTION PERIOD

YEAR	PROVINCIAL GROSS DOMESTIC PRODUCT HEALTH PRICE INDEX	PROVINCIAL GDP HEALTH INFLATION RATE
1985	1.4214	5.09%
1986	1.4827	4.31%
1987	1.5429	4.06%
1988	1.6048	4.01%
1989	1.6711	4.13%
1990	1.7427	4.28%
1991	1.8304	5.03%
1992	1.9264	5.24%
1993	2.0289	5.32%
1994	2.1371	5.33%
1995	2.2513	5.34%
1996	2.371	5.32%
1997	2.4966	5.30%
1998	2.6284	5.28%
1999	2.7672	5.28%
2000	2.9126	5.25%
2001	3.0651	5.24%
AVERAGE		5.10%

SOURCE: ACTUAL-STATISTICS CANADA.PROJECTIONS-CANMAC ECONOMICS

TABLE A7

HISTORICAL PERIOD

YEAR	AVERAGE GROSS SALARIES & WAGES OF N.S. HOSPITAL EMPLOYEES	PERCENTAGE CHANGE
1971	4963.07	
1972	5528.22	11.39%
1973	6060.90	9.64%
1974	6876.84	13.46%
1975	8185.39	19.03%
1976	9224.68	12.70%
1977	10442.72	13.20%
1978	11811.15	13.10%
1979	12676.51	7.33%
1980	13735.38	8.35%
1981	14950.13	8.84%
1982	18089.55	21.00%
1983	19532.83	7.98%
1984	21659.35	10.89%
	AVERAGE	12.07%

OPTIMISTIC CASE

PROJECTION PERIOD

YEAR	AVERAGE GROSS SALARIES & WAGES OF N.S. HOSPITAL EMPLOYEES	PERCENTAGE CHANGE
1985	22945.83	5.94%
1986	24151.30	5.25%
1987	25195.80	4.32%
1988	26353.37	4.59%
1989	27677.06	5.02%
1990	29259.12	5.72%
1991	30888.15	5.57%
1992	32688.86	5.83%
1993	34636.56	5.96%
1994	36717.64	6.01%
1995	38934.03	6.04%
1996	41277.97	6.02%
1997	43592.24	5.61%
1998	46267.55	6.14%
1999	49073.05	6.06%
2000	52016.98	6.00%
2001	55111.47	5.95%
	AVERAGE	5.65%

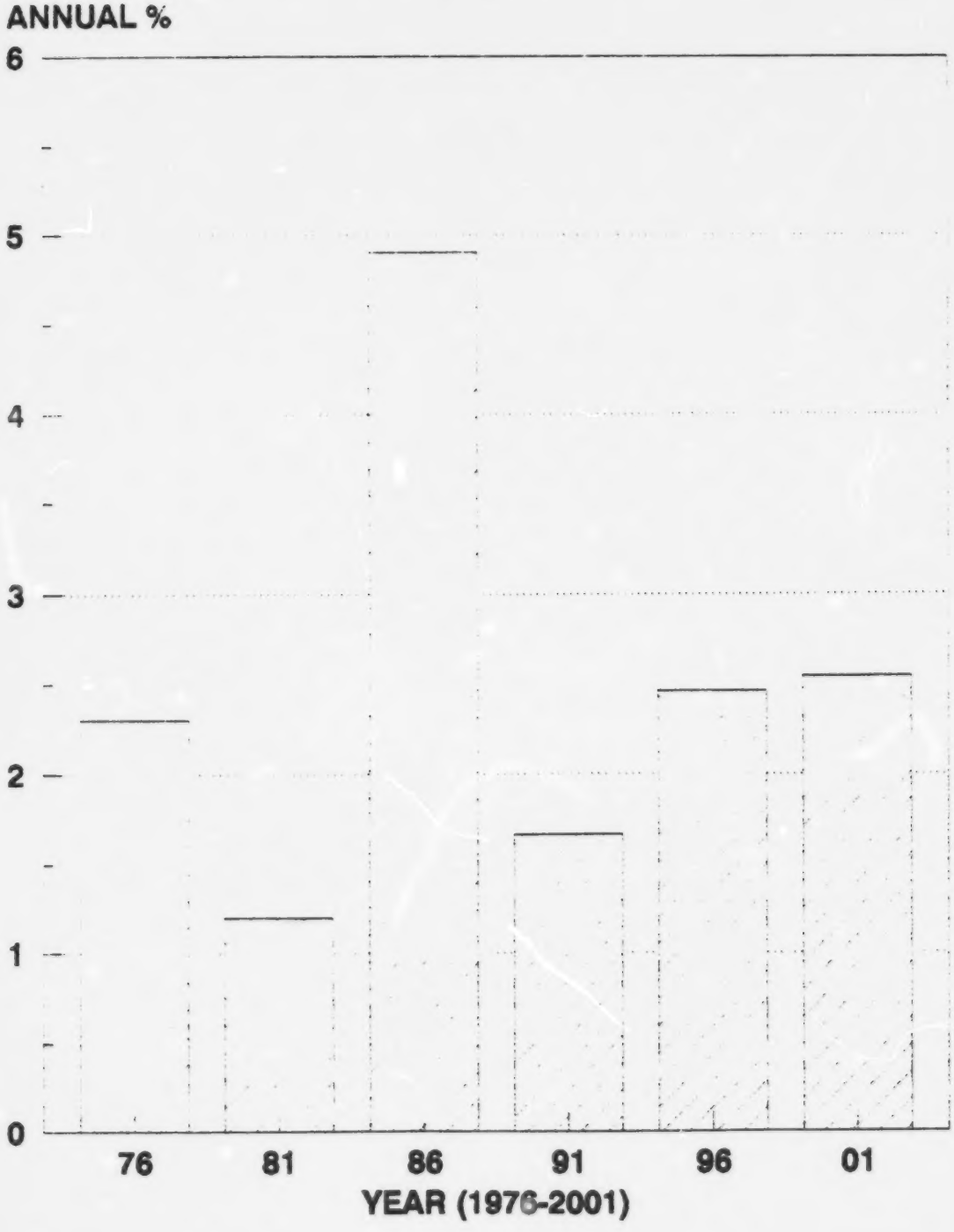
SOURCE: ACTUAL-STATISTICS CANADA.PROJECTIONS-CANMAC ECONOMICS

APPENDIX IV

CHARTS FOR THREE SCENARIOS

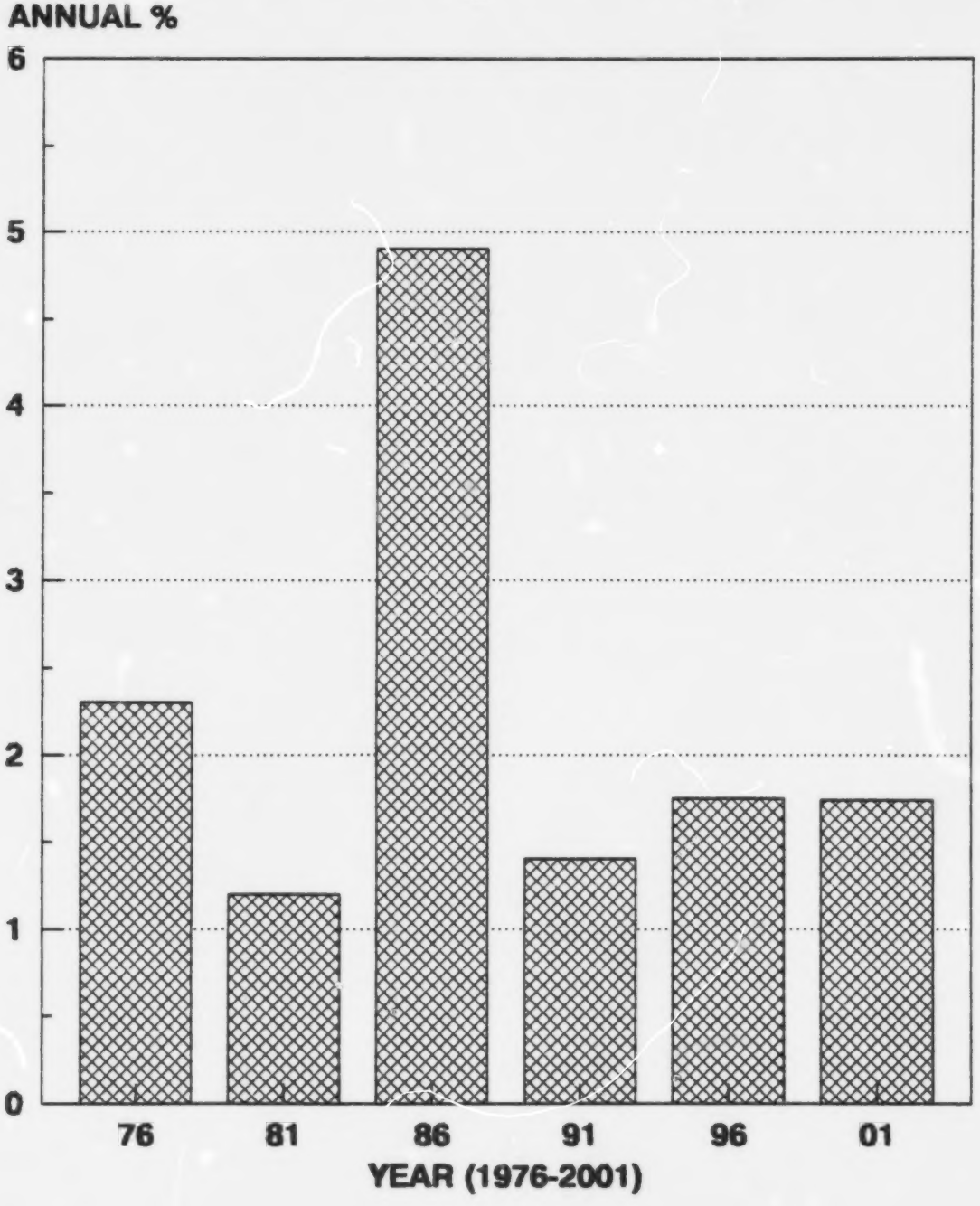
NOVA SCOTIA ECONOMIC OUTPUT

BENCHMARK CASE



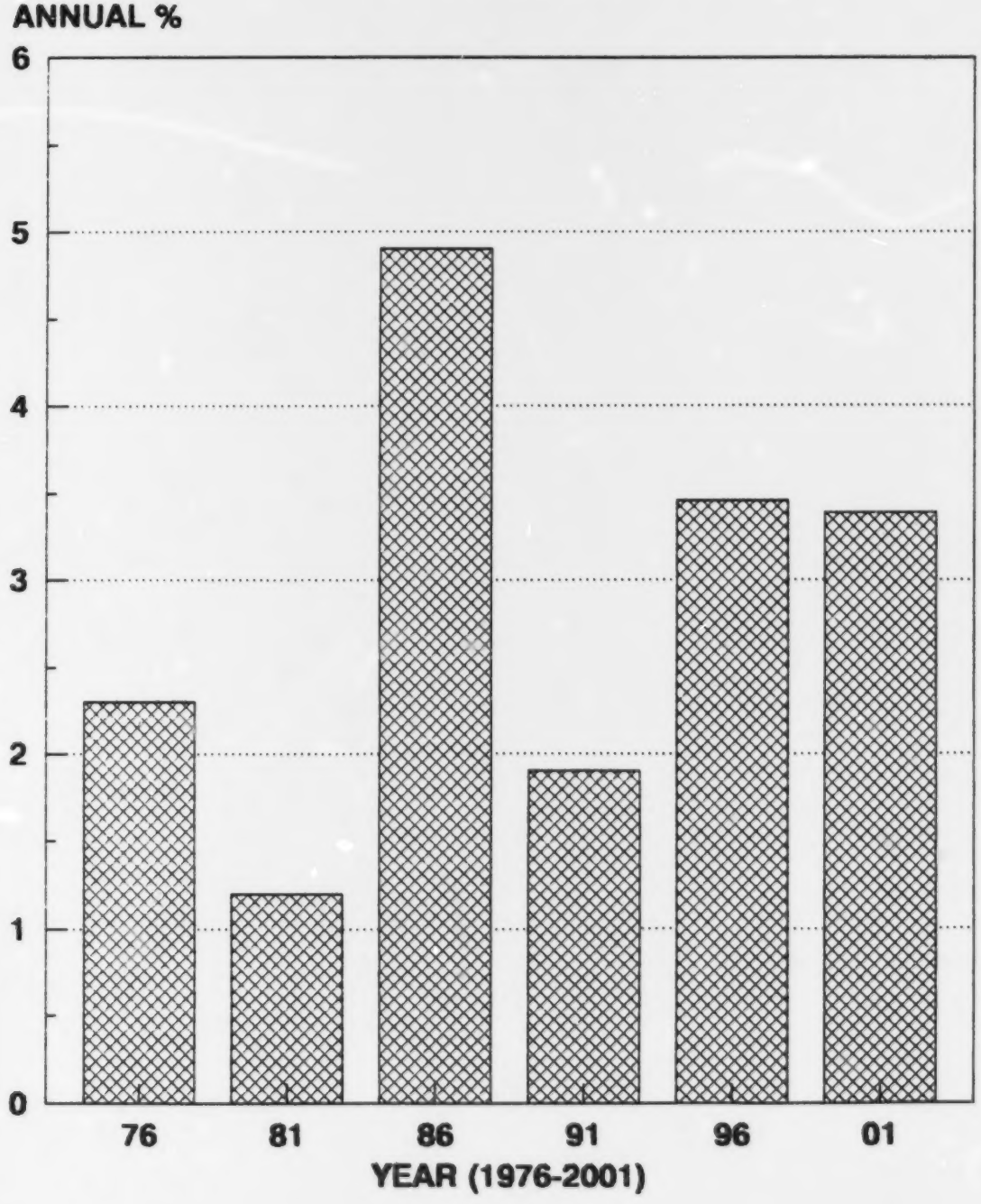
NOVA SCOTIA ECONOMIC OUTPUT

PESSIMISTIC CASE



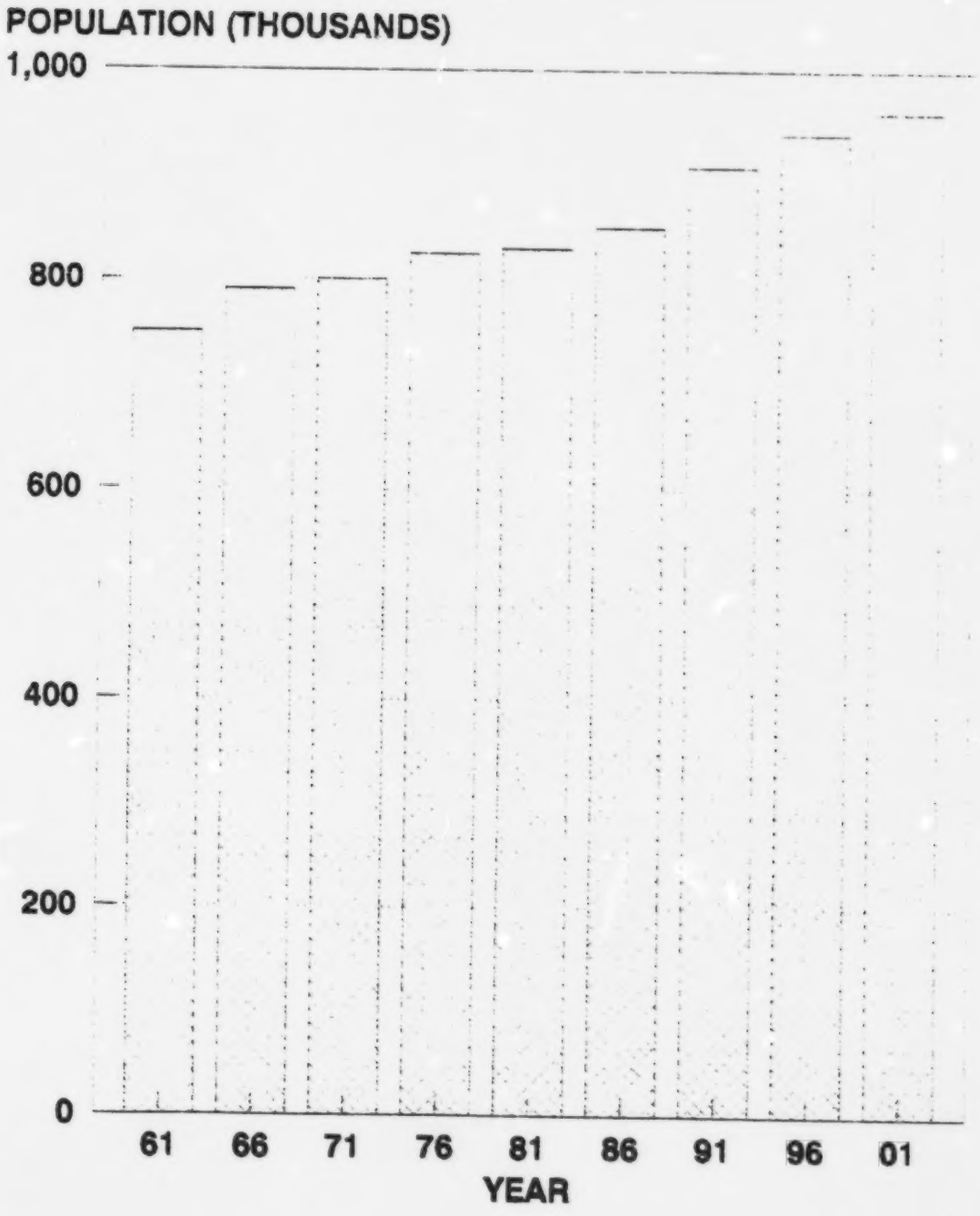
NOVA SCOTIA ECONOMIC OUTPUT

OPTIMISTIC CASE



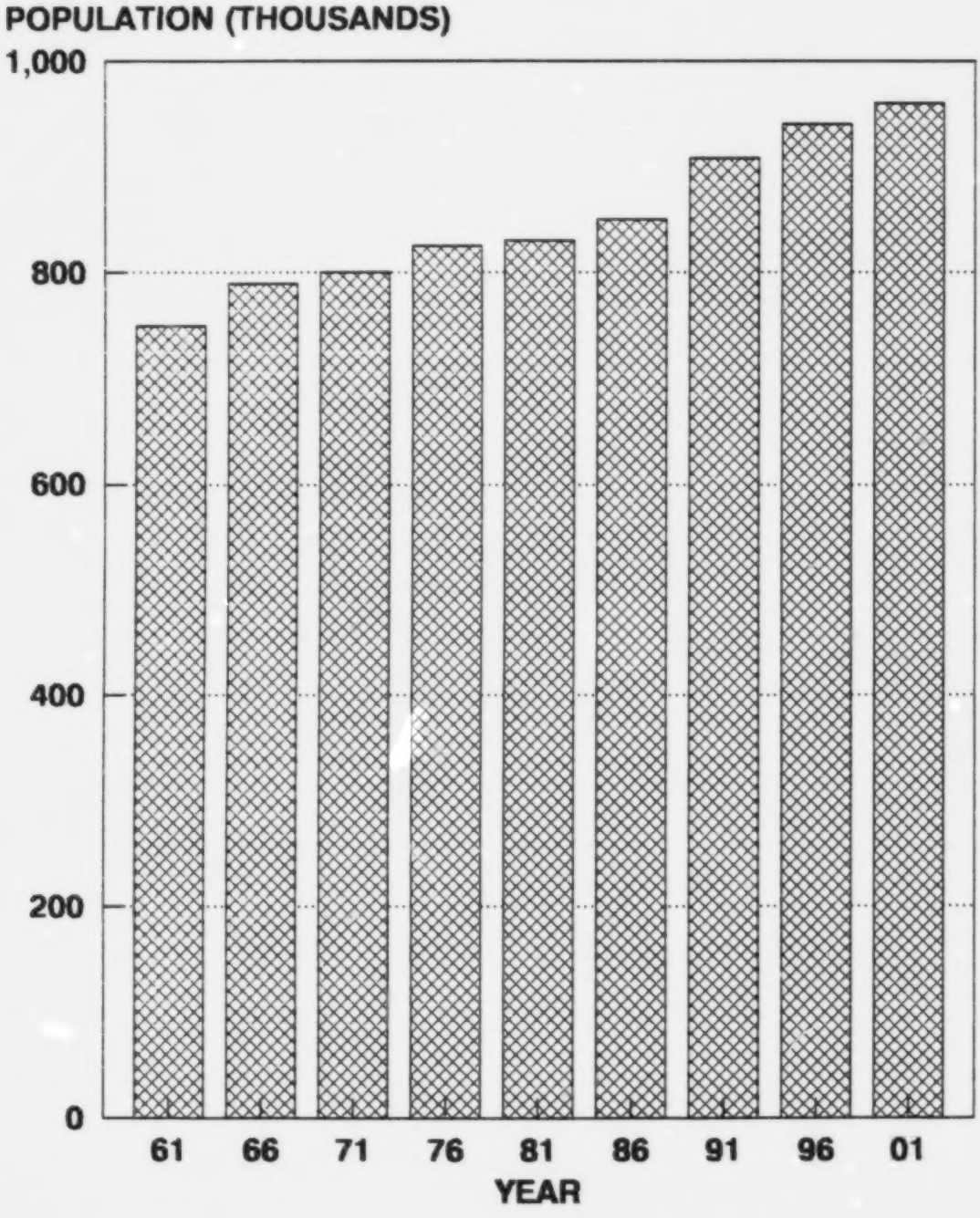
NOVA SCOTIA POPULATION 1961-2001

BENCHMARK CASE



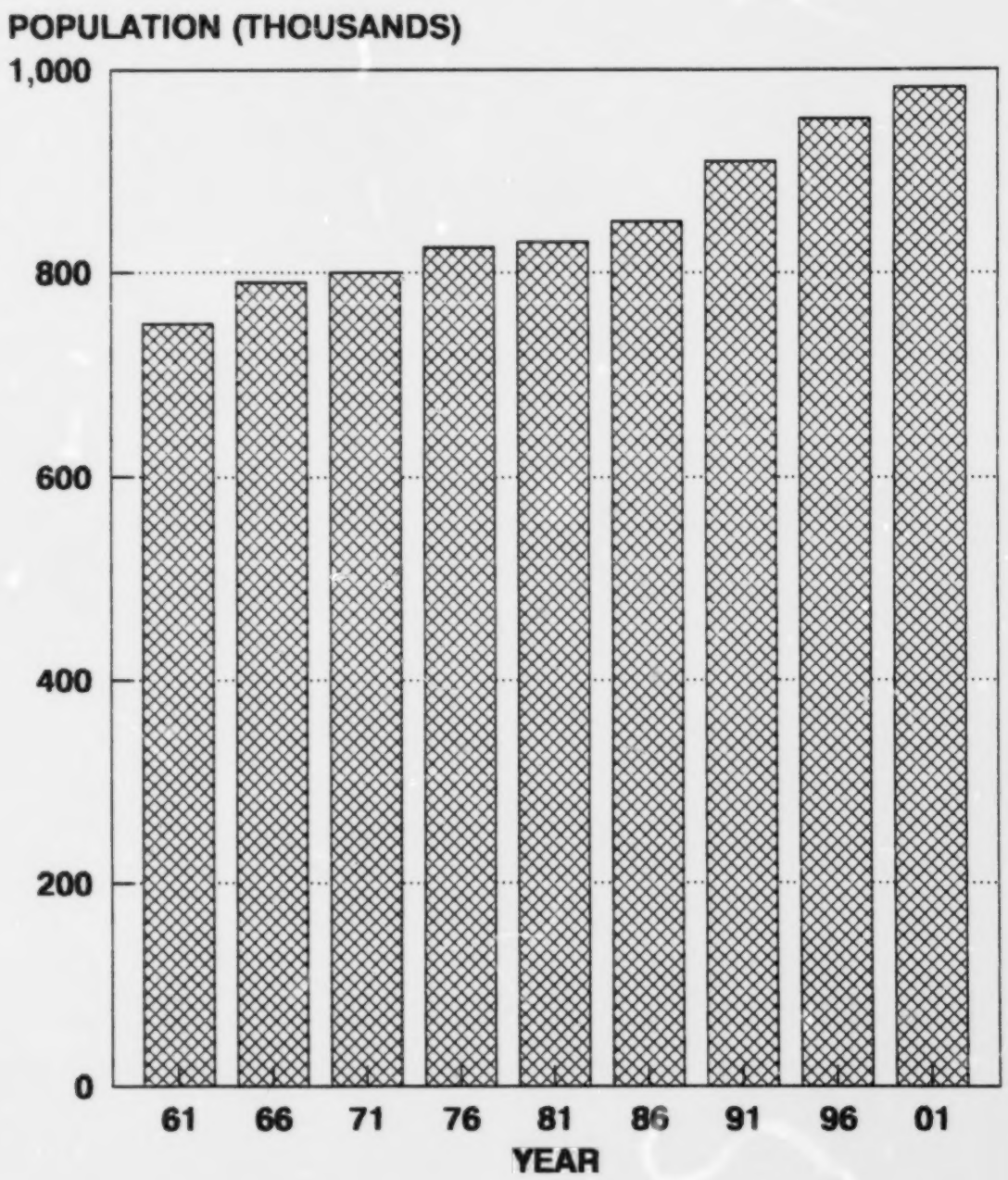
NOVA SCOTIA POPULATION 1961-2001

PESSIMISTIC CASE



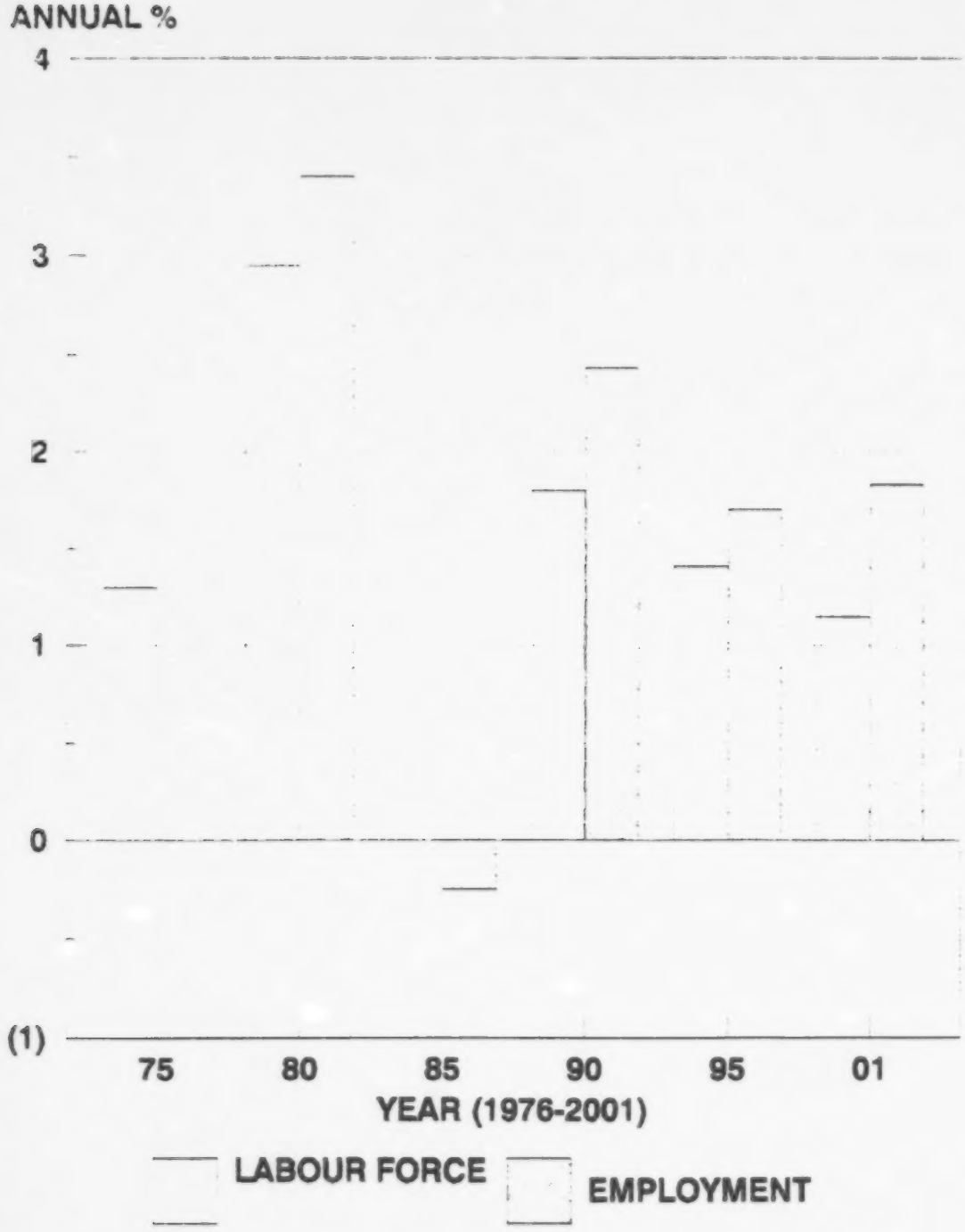
NOVA SCOTIA POPULATION 1961-2001

OPTIMISTIC CASE



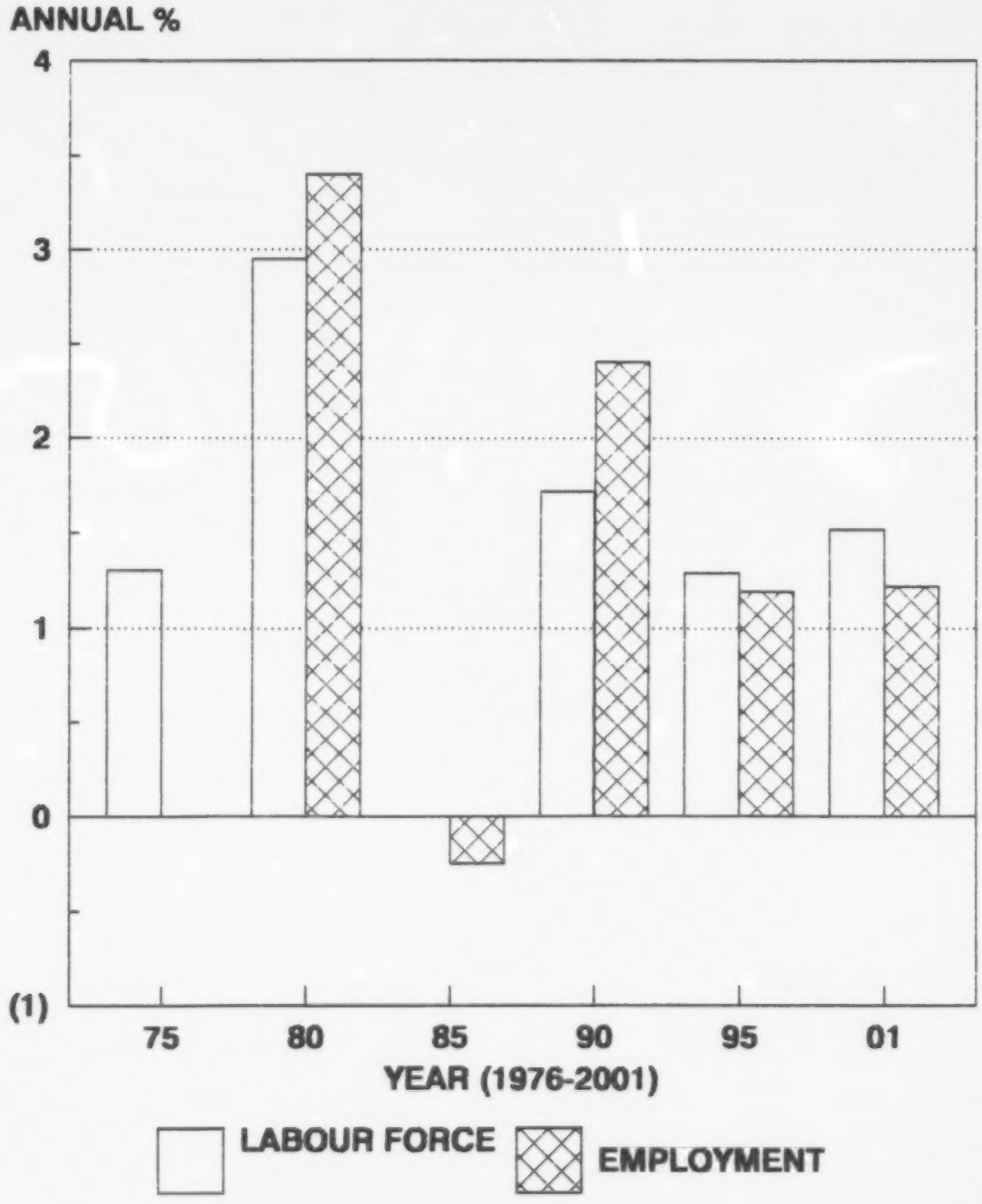
NOVA SCOTIA LABOUR FORCE AND EMPLOYMENT

BENCHMARK CASE



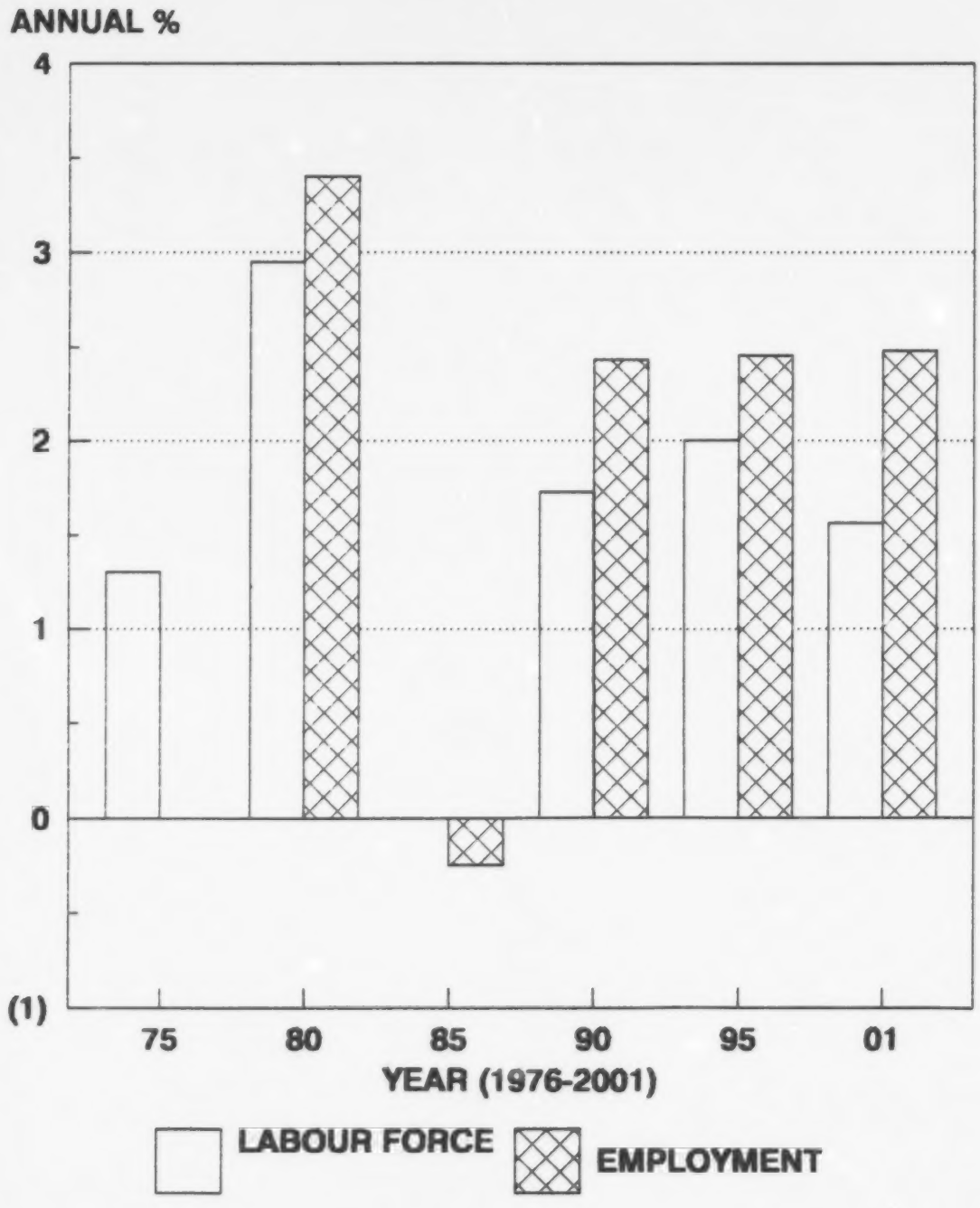
NOVA SCOTIA LABOUR FORCE AND EMPLOYMENT

PESSIMISTIC CASE



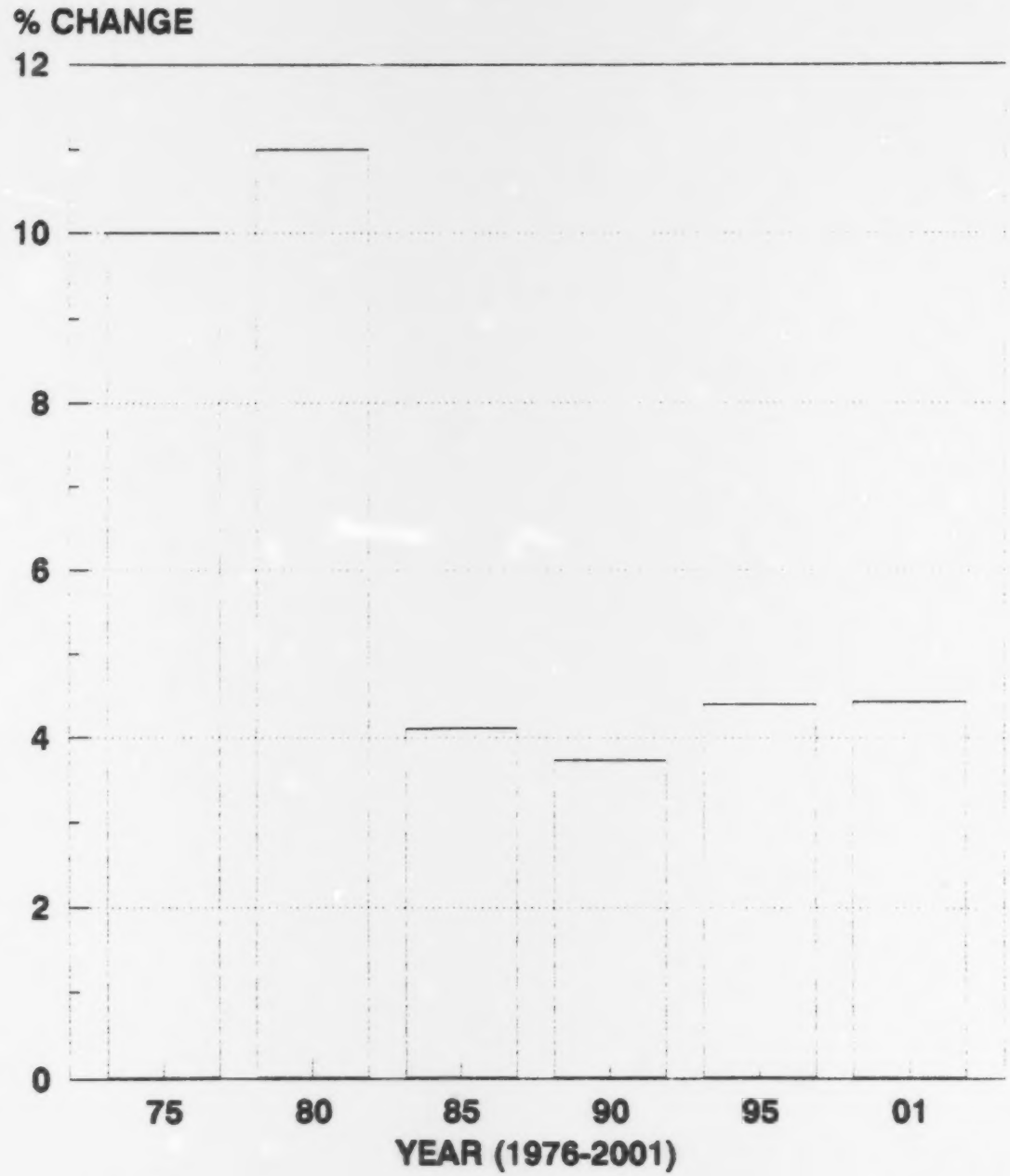
NOVA SCOTIA LABOUR FORCE AND EMPLOYMENT

OPTIMISTIC CASE



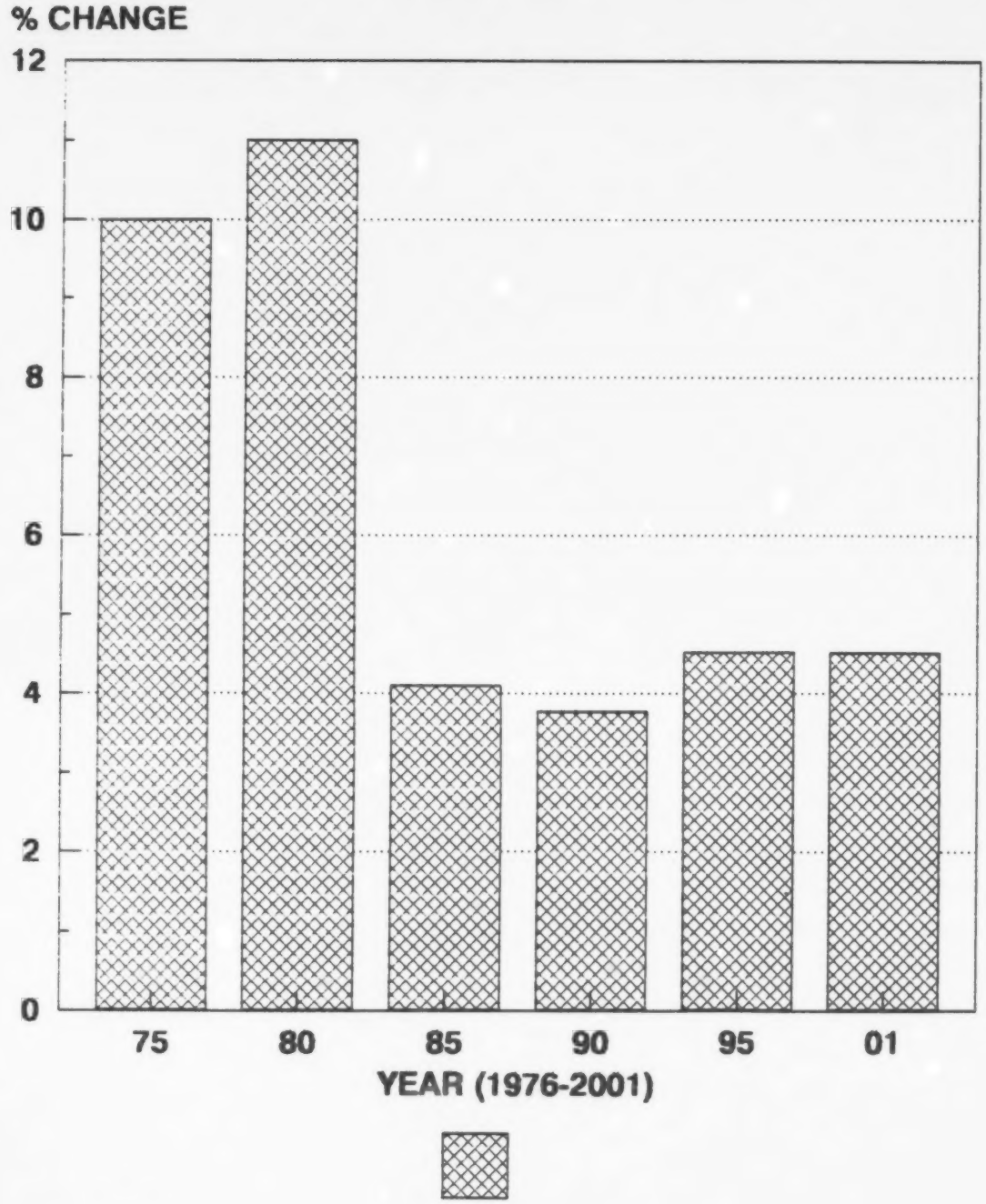
NOVA SCOTIA CONSUMER PRICE INDEX

BENCHMARK CASE



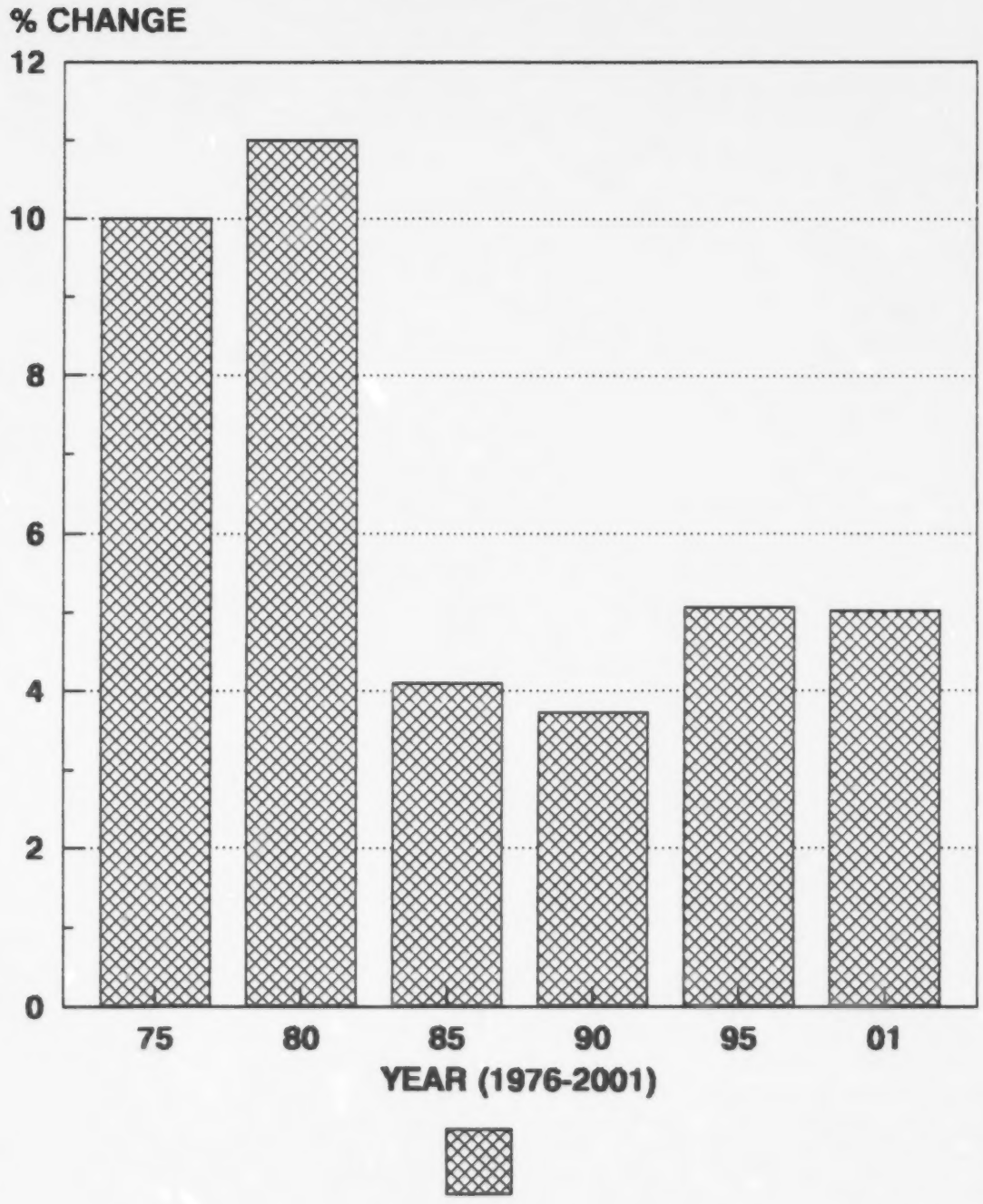
NOVA SCOTIA CONSUMER PRICE INDEX

PESSIMISTIC CASE



NOVA SCOTIA CONSUMER PRICE INDEX

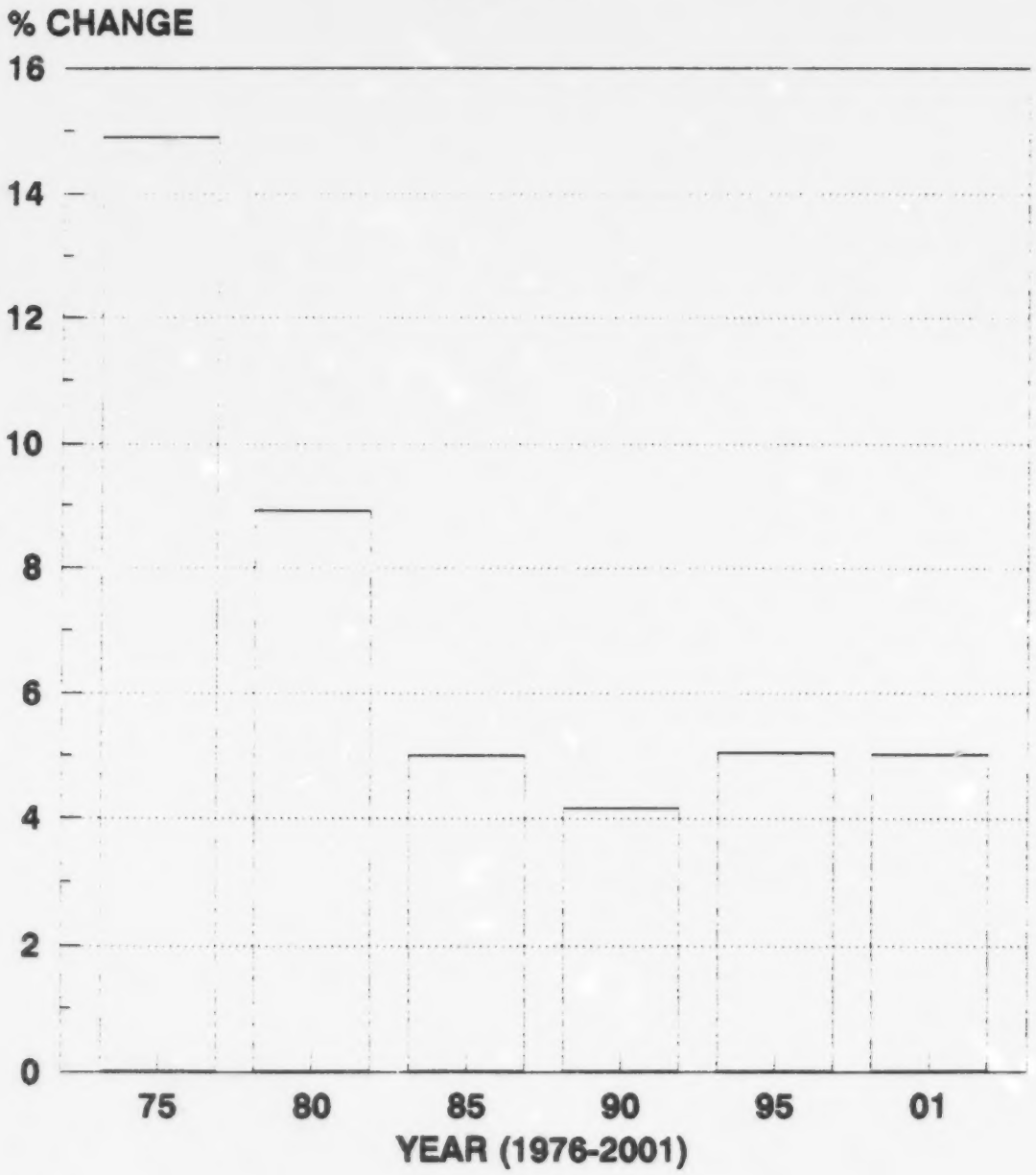
OPTIMISTIC CASE



NOVA SCOTIA AVERAGE ANNUAL WAGE

PERCENTAGE CHANGE CURRENT $

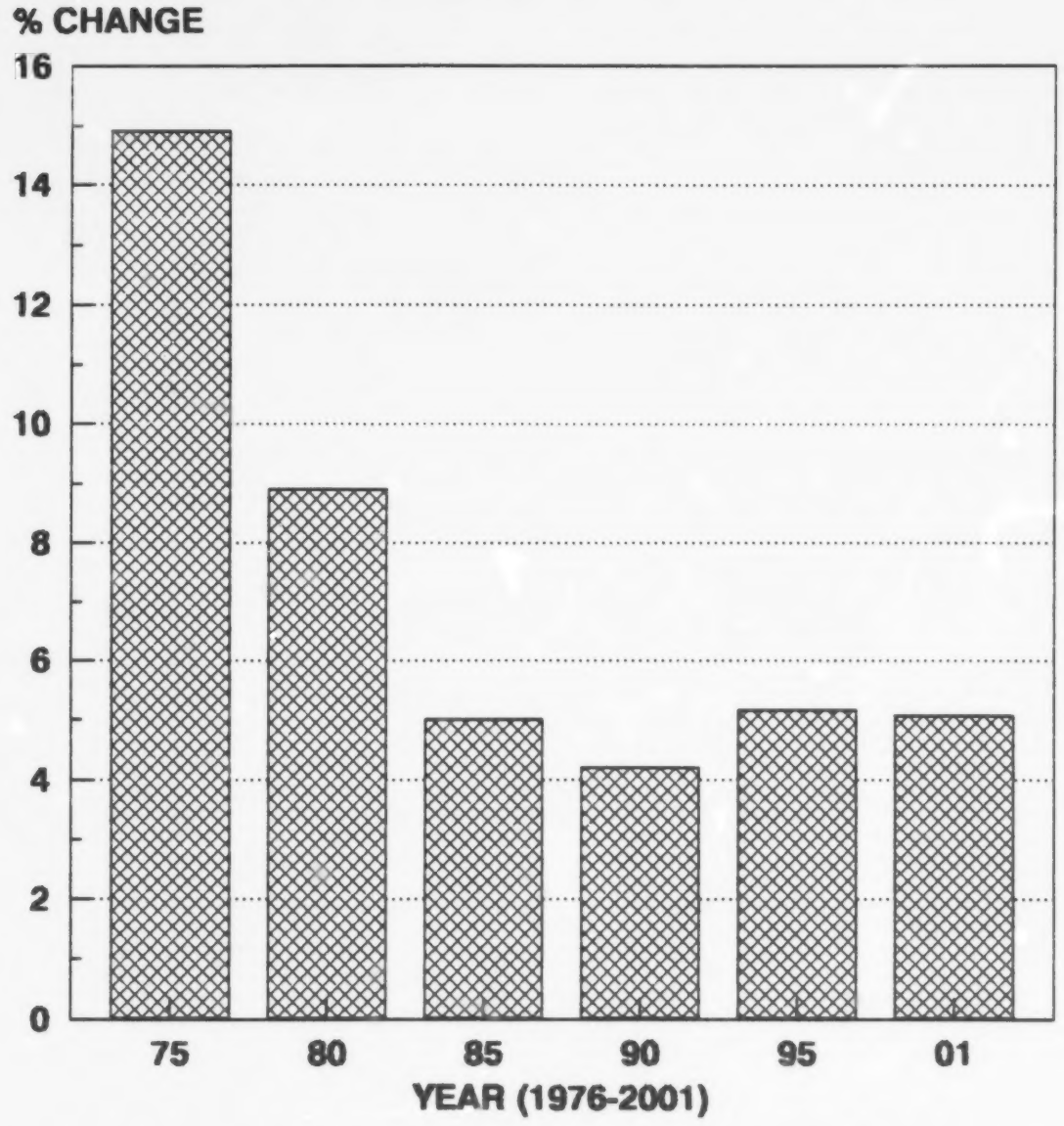
BENCHMARK CASE



NOVA SCOTIA AVERAGE ANNUAL WAGE

PERCENTAGE CHANGE CURRENT $

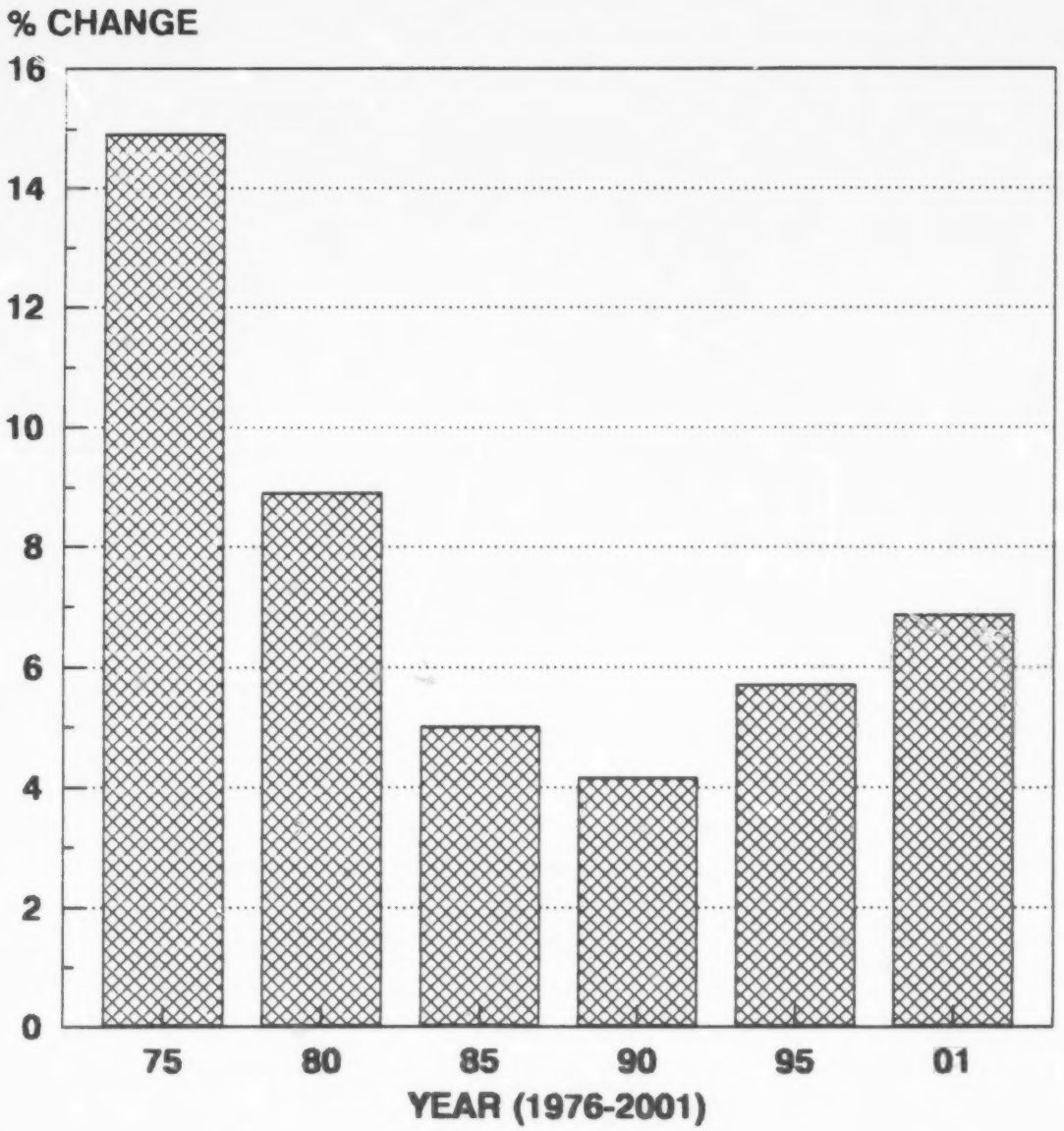
PESSIMISTIC CASE



NOVA SCOTIA AVERAGE ANNUAL WAGE

PERCENTAGE CHANGE CURRENT $

OPTIMISTIC CASE



APPENDIX V

PROJECTION OF KEY ECONOMIC VARIABLES

PROJECTIONS OF KEY ECONOMIC VARIABLES

1. The population of Nova Scotia will rise to 960,650 by the year 2001 under both baseline and pessimistic scenarios. This represents a 10.0% increase over the 1986 level of 873,190. Population growth under our optimistic case is slightly greater at 12.5% leading to a forecast of 982,650 persons in the year 2001.

2. Benchmark case projections indicate an average annual rate of growth in economic output of 2.37% in 1981 constant dollars over the period 1988-2001. For the same period, our pessimistic and optimistic scearios yield forecasts of 1.74% and 3.12% respectively.

3. With the above projected rates of growth in Nova Scotia's economic output we obtain an unemployment rate under the benchmark case of 5.5% in the year 2001. The pessimistic case has predicted slower growth in output which will be accompanied by a higher unemployment rate of 9.9%. The optimisitc scenario of higher growth predicts an unemployment rate of 3.4%.

4. Baseline forecasts indicate an average annual inflation rate for Nova Scotia over the years 1988-2001 of 4.3%. This figure is slightly lower than that predicted by our pessimistic scenario of 4.39% and also that of our optimisitc scenario of 4.7%.

5. The average annual wage prevailing in the year 2001 is quite similar under all three scenarios. Benchmark employment income is forecasted to be $41,135; if the pessimistic case prevails, an average worker will earn $41,582 and $43,820 will be the average annual wage under the optimisitc scenario, current dollars. Average annual rates of increase in wages, 1985-2001 in current dollars are 4.76%, benchmark case, 4.81% pessimistic case and 5.57% optimistic case.

PROJECTIONS OF KEY ECONOMIC VARIABLES
NOVA SCOTIA

	PESSIMISTIC	BENCHMARKC	OPTIMISTIC
1. POPULATION (YEAR 2001)	960,650	960,650	982,650
POPULATION INCREASE (%CHANGE 1986-2001)	10%	10%	10%
2. AVERAGE ANNUAL RATE OF GROWTH IN ECONOMIC OUTPUT(1981 CONSTANT DOLLARS FOR 1988-2001)	1.74%	2.37%	12.59%
3. UNEMPLOYMENT RATE (YEAR 2001)	9.9%	5.5%	3.4%
4. N.S. AVERAGE ANNUAL INFLATION RATE (1988-2001)	4.39%	4.3%	4.7%
5. AVERAGE ANNUAL WAGE (YEAR 2001) (CURRENT $'S)	$41,582	$41,135	$43,820
AVERAGE ANNUAL RATE OF INCREASE IN WAGES (1985-2001)	4.81%	4.76%	5.57%

INDIRECT COSTS OF TEACHING IN NOVA SCOTIA HOSPITALS

Final Report

Prepared for the

NOVA SCOTIA ROYAL COMMISSION ON HEALTH CARE

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INDIRECT COSTS OF TEACHING IN NOVA SCOTIA HOSPITALS

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EXECUTIVE SUMMARY

The objective of this study has been to document the existence, nature and extent of the indirect teaching costs in teaching hospitals after adjusting for size, severity of illness, and geographic location.

Indirect teaching costs may be defined as those additional costs that are incurred by a hospital because it is engaged in medical education and has a number of residents directly involved in patient care. These costs do not include direct teaching costs, which may be defined as salaries paid to teaching physicians, salaries of interns and residents and costs of class rooms. The indirect costs of teaching may arise because of the increased use of ancillary services, pressure for state-of-the-art facilities or the need for more support staff. Due to the nature of indirect costs, statistical analysis is necessary to estimate them.

Hospital costs were assumed to be a function of bed size, occupancy rate, average severity level of patients treated, teaching status, and relative wages. Regression analysis was used to determine the effect of each of these factors on cost.

There were two dependent variables used in the analysis. The first variable, cost per day, was used to measure inputs. A cost per stay measure was the second variable used. It was included to capture average costs and measure the cost of outputs from hospitals.

The results of the cost per day analysis showed that an increase of one resident or intern per 100 beds would lead to a cost increase of $14.84 per day per bed, all other things being equal. The results of the cost per stay analysis showed that the same increase of residents or interns would result in $78.43 increase in cost per stay, all other things being equal.

During the analysis, other factors contributing to differences in costs between teaching and non-teaching hospitals were examined. Two other factors were found to affect costs. First, teaching hospitals tend to have a higher occupancy rate than non-teaching hospitals. This is found to have a negative influence on costs, implying teaching hospitals are taking advantage of economies of scale. Secondly, and most importantly, is that severity of illness had a positive impact on cost. We have shown that teaching hospitals, on average, treat a more severely ill group of patients. Regression analysis has shown that cost per stay increases, all other things being equal, as the average severity of illness treated by a hospital increases. This would imply that teaching hospitals would have higher costs than non-teaching hospitals.

SECTION 1 - INTRODUCTION

Teaching hospitals have long been thought to have higher costs than non-teaching hospitals. Studies have shown this to be true in the United States, and these extra costs are recognized in the Medicare payment system. A study recently completed by Case Mix Research for the Association of Canadian Teaching Hospitals (ACTH) also found that ACTH hospitals experienced higher costs due to a variety of factors.[1]

The most controversial factor said to give rise to extra costs for teaching hospitals is the indirect cost of teaching. Indirect costs may be defined as "... higher patient costs incurred by hospitals with medical education programs. [It is] ... also true that the mere presence of interns and residents in an institution puts extra demands on other staff and leads to the existence of higher staffing levels".[2]

Indirect costs do not include costs of medical teaching staff, teaching supplies, or any of the other costs directly attributable to teaching. Indirect costs arise because teaching puts other burdens on

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[1] ASSOCIATION OF CANADIAN TEACHING HOSPITALS. "Indirect Costs of Teaching in Canadian Hospitals". Report prepared by Case Mix Research, Queen's University. 1989.

[2] LAVE, Judith R. "The Medicare Adjustment for the Indirect Costs of Medical Education: Historical Development and Current Status". Report prepared under contract with the Association of American Medical Colleges. January 1985.

a hospital's budget such as the increased use of ancillary services, increased availability of state of the art testing facilities or need for more support staff. The main emphasis of this study is to determine whether these indirect costs exist in Nova Scotia and, if so, measure their effect on the overall cost of operating a teaching hospital.

Three other factors consistently found to increase the cost of teaching hospitals are concerned with the characteristics of the teaching hospitals themselves. Teaching hospitals tend to be larger, urban, and treat more severely ill patients. These factors will also be studied in an attempt to determine their effect on costs.

This report will be divided into six sections. Section 2 will review literature presently available discussing the effects of teaching status on hospitals costs; Section 3 will discuss the methodology used for this study; Section 4 presents the results of statistical analysis; Section 5 will explain the implications of the results; and Section 6 presents a summary and conclusions.

SECTION 2 - LITERATURE REVIEW

In 1987 the Council for Teaching Hospitals of Alberta (CTHA) issued a position paper attempting to explain the differences in costs between teaching and non-teaching hospitals.[3] They found that teaching hospitals have higher costs because they provide "a more comprehensive, more sophisticated set of services for patients who are more severely ill or who have more complicated problems"[4] than patients in non-teaching hospitals. Teaching hospitals also have a more specialized staff which tends to increase costs.

Based on a Resource Need Index, the CTHA study found that the average patient treated in teaching hospitals requires 1.26 times more resources than the average patient in non-teaching hospitals.[5] They had similar results by assigning DRG weights to individual patients. Using this measure, teaching hospitals were found to have 24 percent higher resource requirements than non-teaching hospitals.

After taking the difference in case mix into account, there was still a large difference in the cost of teaching versus non-teaching hospitals. The CTHA attributed this difference to teaching hospitals having higher "standby" costs (having to keep facilities ready to

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[3] COUNCIL OF TEACHING HOSPITALS OF ALBERTA, "Position Paper on Hospital Funding in Alberta". July 31, 1987.

[4] Ibid.

[5] Ibid.

accept referrals), a higher out-patient volume, and to indirect costs related to teaching. No attempt was made to quantify these factors.

A study was undertaken in the U.S. by Judith Lave to measure the effect of the indirect cost of teaching on average costs of hospitals. Lave assumed that average costs are a function of case mix, relative wages, residents per bed, hospital bed size, and urban/rural location.

Lave found that, after adjusting for case mix, wages, bed size and size of city, the average cost of a hospital increased by 5.79 percent for every 0.1 percent increase in the number of residents per bed.[6] This figure was eventually used in the Medicare Prospective Payment to reimburse hospitals in the U.S. for indirect teaching costs. (Later this adjustment was arbitrarily doubled to take account of other factors). Lave, however, stated that "the adjustment for indirect medical education costs is only a proxy to account for a number of factors which legitimately increase costs in teaching hospitals"[7]. Lave did not feel this figure was an accurate measure of the indirect costs of teaching because the system used to account for severity differences between hospitals was not accurate enough. She suggested the use of severity overlays in any future studies to better isolate thr effect of indirect costs of teaching.

---

[6] LAVE, p. 4.

[7] Ibid, p. 6.

Detsky et al undertook a study during a housestaff strike in Ontario's teaching hospitals to determine if residents and interns ordered more tests than practising physicians[8]. The strike of the Professional Association of Interns and Residents in Ontario resulted in a 75% reduction in the housestaff of these hospitals.

Data was collected from laboratory tests and radiology during the strike period, for the two weeks before the strike, and for the two weeks after the strike. Comparisons were performed using seven days of utilization during the strike period and fourteen days of utilization during the no-strike period. Eleven of the twenty Ontario Council of Administrators of Teaching Hospitals (OCATH) hospitals provided data that was suitable for analysis. For the other nine hospitals, the necessary information could not be abstracted from the records.

During the strike, the number of tests performed per patient day decreased by only 8.3%. These results are explained as follows. First, the test-ordering behaviour of the housestaff is taught to them by the attending staff. This implies that when the housestaff is removed from the hospital, the test-ordering behaviour does not change. Secondly, "...the patterns of test-ordering behaviour in a teaching hospital may be dictated by case mix, severity of illness, referral patterns, or types of services provided (eg. cardiovascular

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8 Detsky, Allan S. et al. "Do Interns and Residents Order More Tests than Attending Staff?" Medical Care 24(6), 1986.

surgery, oncology, and dialysis) in each of the hospitals and may have evolved over a period of years".[9]

It follows that more aggressive treatment protocols are used by attending physicians in teaching hospitals.

James M. Cameron, in his article "The Indirect Costs of Graduate Medical Education", has attempted to measure cost differences in the U.S. patient care process that are attributable to the presence of physician training. He has attempted to overcome what he feels to be limitations in previous studies in five ways. First, his study has approached the problem of measuring the indirect patient-care costs associated with teaching through comparisons of teaching and non-teaching hospitals. Secondly, his analysis was based on costs rather than charges. Thirdly, teaching hospitals were classified according to levels of teaching intensity. Fourthly, the study included non-teaching physicians' costs in order to control for differences in physician-compensation arrangements. Finally, the study controlled for differences in patient case mix among institutions[10]. The study also attempted to explain difference in costs due to differences in physicians' treatment patterns.

In this study, hospitals were placed into four teaching

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[9] Ibid p.532

[10] CAMERON, James M. "The Indirect Costs of Graduate Medical Education". p. 1233.

In this study, hospitals were placed into four teaching categories: university, major teaching,. minor teaching and non-teaching hospitals. "This study found that teaching hospitals, especially university hospitals, were found to treat a much more costly case mix than non-teaching hospitals. After adjusting for case mix complexity, teaching hospitals' costs were still found to be substantially higher than those of non-teaching hospitals, and the degree of such differences was directly related to hospitals' teaching commitments."[11]

In 1988 the Association of Canadian Teaching Hospitals (ACTH) requested a study to be done on Canadian teaching and non-teaching hospitals by Case Mix Research, Queen's University. The purpose of this research was to determine if indirect costs of teaching exist in Canada, and if so, to measure their effect. In addition, five other factors (size, case mix, severity, urbanicity and relative labour costs) were examined to determine their effects on hospital costs.

The results of this study showed that there are differences in costs both in the cost per case and cost per patient day regression analysis, between teaching and non-teaching hospitals arising from the indirect effect of teaching.

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[11]Ibid, p. 1237.

There are four other factors leading to higher costs in teaching hospitals in the ACTH study. Teaching hospitals are generally found in large urban centres and areas with high relative wage rates. These factors were found to lead to higher costs per patient day for teaching hospitals. Teaching hospitals were also found to face higher costs per case on average because they tend to be much larger than non-teaching hospitals. Finally, teaching hospitals treat a much more severely ill group of patients and this was found to lead to higher cost per case and cost per patient day.

SECTION 3 - METHODOLOGY

A. SPECIFICATION

In order to determine what causes differences in costs between teaching and non-teaching hospitals, a cost function must be estimated. This cost function attempts to include all those factors which affect the costs of a hospital and show their relationship to these costs. Based on previous work performed in the U.S. and on our study for ACTH, it was hypothesized that the main factors influencing costs are bed size, occupancy rate, average severity level of patients treated, teaching status, and relative wages. Urbanicity was not included in the model because it was so closely related to teaching status, since teaching hospitals were located in the higher levels of urbanicity. Exhibit 8, Table 4 shows the high degree of collinearity between urbanicity and teachingness, making it inappropriate to put both in the same equation. Thus, the equation was of the form:

COST = fn (bed size, occupancy rate, average severity, teaching status, wages)

Regression analysis was used in order to isolate the effect of each of these factors on cost. For instance, the regression on bed size would produce a coefficient which estimates the extent to which bed size affects costs, all other things being equal. The specification of the function was the general linear model.

B. DATA

This study used a data base of discharges for the fiscal year 1987-88. The data base consisted of 160,393 discharges from forty-seven (47) hospitals; six of which were classified as teaching hospitals. (See Exhibit 1, Table 1.) (N.B. See Section 4, RESULTS for an explanation of why Nova Scotia Rehabilitation Centre was removed from the sample.)

The morbidity data was supplied by the Nova Scotia Department of Health and Fitness, while the cost data and data containing the number of residents and interns was supplied by The Nova Scotia Royal Commission on Health Care.

Due to exclusion of bassinets in bed size, infants of the ages less than one day and less than or equal to seven days were excluded from the data. This excluded approximately 8% of the total sample size; leaving 147,506 discharges in the data set. In addition, discharges that did not have a TOTScale value were also excluded from the data set. These exclusions consisted of approximately 6% of the data set, leaving the total number of discharges at 137,408 (a total loss of 14% of the data). The TOTScale value may not be assigned to a discharge if there is miscoding of diagnosis or procedure codes.

C. VARIABLES

i. Dependent Variables

The dependent variable is that which the regression is attempting to explain; in this case it is cost. For the purpose of consistency throughout all hospital data, depreciation, medical staff costs and education costs were excluded from total operating expenses (see Exhibit 2). These exclusions result in the omission of the direct costs of teaching and the consideration of inconsistencies caused by the usage of different accounting methods. There are two main definitions of cost used as the dependent variable. The first is cost per day of stay; the second is cost per stay. (See Exhibit 3 for explanation.)

The cost per day equation explains average costs on an input basis. That is, this equation explains cost on a total cost basis and is useful when hospitals are reimbursed based on the total cost of inputs. On the other hand, when hospitals are reimbursed on an output basis, then the cost per stay regression is more useful. There is some movement in Canada[12] to funding on an output basis, that is, for the volume, mix and severity of cases treated.

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[12]The Selection and Implementation of Severity of Illness Systems for Alberta and Saskatchewan. Case Mix Research, Queen's University, Kingston, Ontario. In progress.

ii. Explanatory Variables

a. Teaching Status

The main variable focused on is the one measuring teaching intensity. If theory holds, the residents and interns per 100 beds ratio should be positively related to costs. That is, this ratio should have a positive coefficient which would mean that costs increase as the number of residents per 100 beds increase, all other things being equal. Analysis was performed using the number of residents per 100 beds as a measure of the degree to which a hospital is involved in education.

b. Severity Measures

Four measures of average severity of patients were used in this study. Two of the measures, AIM and QScale (TOTScale), are described in Exhibit 4. The third is a product of one of the abstract systems (AIM) and a grouper, Case Mix Groups (CMG) average length of stay weights (AIMSCCMG). The fourth is a product of AIM and a Diagnosis Related Group (DRG) grouper relative weights (AIMSCDRG).

i. AIM

The first measure of severity was the average

Acuity Index Measure (AIM) score of all patients in the hospital. The goal of the AIM algorithm is to explain or account for the variation in length of stay (LOS) or total charges within each DRG category. The algorithm subdivides each DRG into acuity indices which are relatively homogeneous subcategorizations. The algorithm is unique for each DRG. AIM processes the data elements DRG, age, sex, UB-82 discharge status, ICD-9-CM diagnosis codes, and ICD-9-CM procedure codes. AIM index values are assigned within a DRG category. Each of the AIM values (1 through 5) has an increasing LOS associated with it. For example, the expected LOS for AIM 4 within a DRG is longer than AIM 2 within the same DRG. However, AIM 4 does not have an LOS that is twice as long as AIM 2, nor is AIM 4 twice as severe as AIM 2. In the form of AIM we have available, AIM is intended to assign a severity index for each patient, but not to be averaged over all types of patients to give a hospital average. That is, an AIM value of 3 is not necessarily equivalent across all types of diseases, therefore, to weight them equally would give an incorrect measure of severity. The Nova Scotia discharges were all assigned an AIM index value. These values were then averaged across hospitals. Due to the nature of the AIM index value, this approach was abandoned.

In the initial model development for AIM by Iameter, 41 DRG's were chosen based primarily on incidence. The data used for the model development were sample from a database of 3.5 million patients.[13] Sampling yielded approximately 1,000 observations in each of the 41 DRG's being studied.[14] Within each DRG a regression model was defined. The dependent variable was either LOS or log(LOS). The eight independent variables and the interactions of age and sex yielded a total of 20 possible predictors.[15]

Validation of the AIM indices was performed with two mutually exclusive random samples of patient data for each of the DRG's. One sample was used for model development and the other for model validation.[16] In addition, six hospitals of varying types with large numbers of admissions were arbitrarily selected from the database. All patients from these hospitals which

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[13] Acuity Index Method System Methodology (C) Iameter, Inc., 1987.

[14] Ibid.

[15] Ibid.

[16] Ibid, p. 13.

had been assigned to one of the DRG's under study were selected. Each patient was assigned an AIM category.[17]

ii. TOTScale

The second method of severity measure was average TOTScale, which is a severity value output by QScale. The QScale system was designed to allow comparisons between patients. It expresses severity as a percentage centered around a norm of 100. For this study, average TOTScale was approximately 81. (See Exhibit 1, Table 2.) This is due to a less than optimal number of diagnosis codes per observation. In addition, our program for converting ICD-9 codes to ICD-9-CM codes uses the least severe and least specific CM code for the conversion.

To validate the results from Q-Scale, SysteMetrics performed analyses on 50,000 randomly selected hospital discharges from the State of Washington. Records were grouped into overall Q-Scale intervals of 0-49, 50-74, 75-99, 100-149, 150-199, and 200 and above.[18] For each of the intervals the average charge per case was

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[17] Ibid.

[18] Christoffersson JG, Conklin JE and Gonnella J. The Impact of Severity of Illness on Hospital Costs. DRG Monitor, Vol. 6, No. 1, 1988. Page 5.

calculated. An almost linear increase in charges per case by interval of severity was found.[19]

Another set of validity tests were performed on the same data using statistical analysis. These analyses evaluated the degree to which Q-Scale increased the ability of DRG's to predict total hospital charges per case. In the first set of analyses, state level DRG weights were used. In the second, the severity values and the DRG weight norms were both specifically based on the random sample of 50,000 records. In both sets of analysis, Q-Scale improved the explanatory power of DRG's by approximately 50%.[20]

iii. AIMSCCMG

The third measure of severity was AIMSCCMG which was found by placing each discharge in a Case Mix Group (CMG) and, in turn, assigning the Hospital Medical Record Institute (HMRI), CMG length of stay weight. It expresses severity as a numeric value. The average AIMSCCMG was 12.69. (See Exhibit 1, Table 2.) Case

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[19]Ibid.

[20]Ibid.

Mix Groups were developed in the early 1980's by the Hospital Medical Records Institute (HMRI). There are 657 Case Mix Groups. Each of the groups has assigned to it an average LOS weight. HMRI develops these weights each year on a Canadian data base by averaging the LOS of the patients within a CMG.

Since CMG's do not as a rule produce homogeneous groups of patients with respect to resource use, overlay systems are necessary to measure resource consumption and severity of illness. We assigned a CMG to each discharge in the Nova Scotia data base, then assigned the corresponding average LOS weight. This weight was then multiplied by the AIM score (severity overlay) to produce an individual patient level of severity. The individual AIMSCCMG was then averaged by hospital to produce a hospital level of severity.

iv. AIMSCDRG

AIMSCDRG, the fourth and final measure of severity, was found by placing each discharge in a DRG and, in turn, assigning the appropriate Diagnosis Related Group (DRG) relative weight. It expresses severity as a numeric value. The average AIMSCDRG was 1.92. (See Exhibit 1, Table 2.)

The homogeneity of DRG's have been studied when broken into 3 categories: medical, surgical, and psychiatric.[21] The variation in surgical DRG's was quite small, however both medical and psychiatric DRG's exhibited significant variation in lengths of stay. The authors concluded that variation in costs were sufficient to offset variations in these last 2 DRG's. To assist in minimizing these variations, severity overlay systems are used in conjunction with DRG's to improve predictive ability with respect to resource consumption, LOS and severity of illness.

The DRG relative weights "...represents the average resources required to care for a case in that particular DRG relative to the national average of resources consumed per case. Thus, cases in a DRG with a weight of 2.0 would, on average, require twice as many resources as the average case."[22]

DRG relative weights are re-calibrated on a yearly basis for the medicare population so that they most accurately reflect current relative resource use.

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[21] Ibid.

[22] Federal Register Vol. 52, No. 169. Tuesday, September 1, 1987. Rules and Regulations. p. 33035.

AIMSCDRG was found by multiplying the AIM score for each patient by the DRG relative weight. This measure of severity was then averaged to get the hospital level of severity.

There were two problems faced when severity scoring. First, the diagnosis and procedure codes needed for severity scoring the data were provided in the ICD-9 convention. It was necessary for the ICD-9 diagnosis codes be converted to ICD-9-CM codes so that the above-mentioned severity software systems could be used (severity overlay systems such as Q-Scale and AIM are developed in the U.S., thereby using ICD-9-CM codes). Our conversion program has been written to convert the ICD-9 codes with the least severe and least specific ICD-9-CM code. For example, a patient coded as 410 (Acute Myocardial Infarction) in ICD-9 coding convention will convert to 410 (Acute Myocardial Infarction) in ICD-9-CM coding convention. However, ICD-9-CM contains an additional digit specifying the area of the myocardium where the problem occurred. When the least specific code is read, the severity score may not be as severe as it would be with a more specific code.

The second problem is the relative sparsity of coding of secondary diagnoses in Canadian hospitals. Consolidating

is an important element in determining severity.

These two problems were expected to cause an underestimation of severity of illness of patients. While the underestimation should affect all hospitals, it is more likely to affect patients in teaching hospitals as it is believed that this group of patients are more severely ill than patients in non-teaching hospitals. For example, in the U.S. TOTScale expresses severity as a percentage centred around a norm of 100. In the Nova Scotia database, TOTScale expresses severity as a percentage centred around approximately 81 (see Exhibit 1, Table 2). These two problems, however, are not expected to affect the main variable focused on - the measure of teaching intensity.

iii. Other Explanatory Variables (See Exhibit 5)

Two variables were included to capture the effect of hospital size on cost. BEDSIZE is defined as the number of beds in the hospital and OCCU_RAT is the occupancy rate of the hospital (defined as the total number of separations multiplied by the average length of stay (ALOS), divided by 365 times the total number of beds in a hospital) (see Exhibit 5). It was hypothesized that both OCCU_RAT and BEDSIZE should be negatively related to costs (as the number of beds increases).

The final variable included was wage index. It attempted to capture differences in labour costs across different locales. It is defined as the labour cost of the hospital divided by the average labour cost of all hospitals. This variable may be positively related to costs, that is, the higher the wage index for the hospital, the higher the costs faced by the hospital.

SECTION 4 - RESULTS

A. COST PER DAY

A general linear regression model was run with cost per day as the dependent variable and residents per 100 beds as the measure of teaching status. The results of the regression are shown in Table 1 of Exhibit 6. (N.B. Nova Scotia Rehabilitation Hospital was removed from the sample as cost per day was an outlier.)

The adjusted R^2 for this equation is 0.6608. As this is a cross-sectional analysis, an adjusted R^2 of 0.6608 can be considered quite good. This means that the model explains approximately 66 percent of the variation in the costs per day between hospitals (see Exhibit 7 for an explanation of R^2).

The results of the regression analysis show that three of the explanatory variables are significant. These are WG_INDEX, OCCU_RAT and RES_INTN. The parameter estimate on WG_INDEX is positive. This may be interpreted as meaning that as the wage index of a hospital increases, so do costs. The parameter estimate on OCCU_RAT is negative. This means that as the occupancy rate increases, costs decline. The parameter estimate on RES_INTN is 14.84. This implies an increase of one resident or intern per 100 beds increases cost by an estimated $14.84 per

day per bed. For example, if a hospital increases from 10 residents and interns per 100 beds to 15 residents and interns per 100 beds, the cost per day per bed would increase by an estimated $74.20.

All signs on the independent variables are in the expected direction. The lack of significance of the severity variable is likely due to collinearity between severity and teachingness and wages.

Exhibit 6, Table 1 shows the variables that are significant in the cost per day equation. Using the data from Victoria General Hospital the following examples shows how the cost of a marginal increase of the significant variables may be calculated. If the wage index in Victoria General is increased from 1.04 to 1.24, the occupancy rate increases from 0.7866 to 0.8866 and the number of residents and interns increases from 23 interns and residents per 100 beds to 28 interns and residents per 100 beds, the predicted cost per day increase will be estimated as follows:

COST/DAY

= 116.71 + 389.50(WG_INDEX) - 254.18(OCCU_RAT) + 14.84(RES_INTN)

= 116.71 + 389.50(.20) - 254.18(0.1) + 14.84(5)

= 116.71 + 77.9 - 25.42 + 74.20

= $ 243.39

B. COST_PER_STAY

In this regression the dependent variable was cost per stay and the measure of teaching status is once again RES_INTN. The results of the regression are shown in Table 2 of Exhibit 6. (Note that the Nova Scotia Rehabilitation Hospital was removed from the sample as cost per stay was an outlier.)

The adjusted R^2 for this equation is 0.5754. This means that the model explains approximately 58 percent of the variation in the cost per stay between hospitals.

The results of the regression show that three explanatory variables are significant. These are TOTSCALE, OCCU_RAT, and RES_INTN. TOTSCALE was the severity measure tht produced the best overall model result. All severity measures were tested. The parameter estimate for TOTScale is positive. It implies that severity is positively related to costs. The parameter estimate on OCCU_RAT is negative. The negative parameter estimate implies that as occupancy rate increases, the cost per stay will decrease. As in the cost/day analysis, RES_INTN is significant and has a positive parameter estimate 78.43. This means that as the number of residents and interns increases, so does cost. For example, an increase of one resident or intern per 100 beds increases cost per stay by $78.43. Therefore, if a hospital

increases from 10 residents and interns per 100 beds to 15 residents and interns per 100 beds, the cost per stay would increase by an estimated $392.15. Again, all variables have the expected sign.

As in the cost per day equation, an example using data from Victoria General Hospital explains how the cost of a marginal increase in the significant variables may be calculated. If TOTScale increases from 128.60 to 148.60, occupancy rate increases from 0.7866 to 0.8866, the number of residents and interns increases from 23 per 100 beds to 28 per 100 beds. The predicted cost per stay increase will be estimated as follows:

COST/STAY

= 1487.88 + 50.32(TOTScale) - 2829.66(OCCU_RAT) + 78.43(RES_INTN)

= 1487.88 + 50.32(20) - 2829.66(0.1) + 78.43(5)

= 1487.88 + 1006.40 - 282.97 + 392.15

= $2603.46

SECTION 5 - DISCUSSION

The implications of both the cost per day and cost per stay regression equations are the same. These regressions show how teaching status affects total costs, and thus can give an indication of how funding should differ between teaching and non-teaching hospitals. The cost per day regression analysis finds that an increase of 5 residents or interns per 100 beds increases cost per bed per day by $74.20 (5*14.84). The cost per stay regression implies that if residents and interns are increased by five per 100 beds, cost per stay would increase by $392.15. Since this database length of stay is approximately 9 days, the per day regression yields an increase in cost per case of $667.80 which is higher than the per case regression. This may be due in part to some of the severity effect being picked up in the teachiness variable in the cost per day analysis.

As the other major factors affecting costs have been controlled for, these are estimates of the indirect costs of teaching. It is the extra cost which comes from increased use of ancillary services, increased staffing needs (nursing and medical records staff) and pressure for state-of-the-art facilities.

A study recently completed by Case Mix Research for ACTH also found that ACTH hospitals experience higher costs due to a variety of factors. The results of the cost per day regression analysis show

that five variables are significant. These are: TOTScale, Occupancy Rate, Wage Index, Province (entered as a class variable) and Teaching Status. The parameter estimates on TOTScale and wage index are positive, while the parameter estimate on Occupancy Rate is negative. The parameter estimate for teaching status is 3.38. This indicates that an increase of 5 residents and interns per 100 beds increases the average cost per patient day by $16.90 (3.38*5).

The results of the cost per stay regression indicated that four explanatory variables (Province, Bedsize, TOTScale, and Teaching Status) were significant. The coefficients on Bedsize and TOTScale are positive. The coefficient for teaching status is 19.74. This indicates that an increase in five residents or interns per 100 beds increases cost per stay by $98.70 (19.74*5).

The Lave study found that the average cost of a hospital stay increased by 5.79 percent for every 0.1 percent increase in the number of residents per bed.[23] This figure was used in the Medicare Prospective Payment to reimburse hospitals in the U.S. for indirect teaching costs; later this was doubled to take account of other factors. When the ACTH results were converted to percent a 6.17 percent increase in cost per case would result from a 0.1 percent increase in the number of residents per bed. Thus the ACTH results are comparable to those found by Lave giving us some further

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[23]LAVE, p. 4.

confidence in the national data.

In comparing the ACTH results with the Nova Scotia results, we found that all of the variables had the same signs on the parameter estimates. That is, when we expect a variable to be a positive value it was a positive value in both studies. The parameter estimates in both the cost per case and cost per stay equations were found to be higher in Nova Scotia than in the ACTH study. The Nova Scotia estimates are higher by a factor of 3-4 than the ACTH results. There may be several reasons for this difference. First collinearity between independent variables was much less marked, as one would expect, in the national data set. The coefficients for Nova Scotia because they contain both urbanicity and severity effects are likely overestimated. Second the coefficient on the Nova Scotia dummy variable was high and significant in both ACTH equations indicating costs in Nova Scotia may be higher than the Canadian average. Third the ACTH sample excluded all hospitals under 100 beds. This has an unknown effect on the comparability of the results. Finally, regression coefficients are correctly interpretated as marginal not average relationships. Hence average cost per case could be similar but costs at the margin could be different in the two datasets.

This leads to two important caveats. First, the coefficient on teachiness should be treated with caution. It is likely an overestimate although we cannot be sure of the magnitude. It may also change markedly when the margin is altered. Second, the results are

much more usable when the model rather than the variable is the unit of analysis.

Combining the regression results with the basic descriptive statistics of the hospitals leads to an understanding of the other factors causing differences in costs between teaching and non-teaching hospitals. First, regression analysis has shown that as occupancy rate (which captures the effect of hospital size) increases, costs decline. This result is not surprising as an increasing occupancy rate would require hospitals to purchase more drugs, food and other supplies. This would entitle hospitals to larger discounts and also reduce administrative costs per patient, since costs would be spread across more patients. This is called taking advantage of "economies of scale". The wage index is another factor which was hypothesized to influence cost. Regression analysis has shown that in the cost per day case, wage index is significant and has a positive influence on cost.

The final factor to influence costs is severity of patients treated by the hospital. In the cost per stay equation, it was found that this factor was both significant and positive. This means that as the average severity of patients treated in a hospital increases, so do costs, all other things being equal. However, severity was not found to be significant in the cost per day equation. This may be due to the effect of the variable being captured by urbanicity and teachiness (multicollinearity). Additionally, this may be explained

by the fact that the TOTScale variables measures severity for the length of stay of a patient and not on a daily basis. The calculation of this variable is related to how long the individuals stayed in the hospital.

Should a reimbursement system be designed to take all of these factors into account, then teaching hospitals on average would be reimbursed at a higher level than non-teaching hospitals. Teaching hospitals would first be reimbursed for the indirect factor affecting costs and secondly because they tend to treat more severely ill patients.

This does not mean that all teaching hospitals would have higher funding than all non-teaching facilities. Some, as a result of treating a less severely ill group of patients, being smaller or facing lower relative wages, might even do worse than at present. All that this analysis shows, besides the fact that teaching hospitals should be reimbursed for the indirect teaching costs, is that teaching hospitals on average would tend to be reimbursed at a higher level than non-teaching hospitals by virtue of their general characteristics.

There was one significant problem encountered in this analysis: multicollinearity. Multicollinearity is defined as an exact or nearly exact linear relationship existing between some or all explanatory variables. That is, two or more variables are said to be linearly

dependent. This may result in a significant variable being shown as insignificant. In our data all teaching hospitals are in areas designated as highly urban. Therefore, urbanicity was not included in the analysis. Thus, the coefficient for RES_INTN may include some effect due to urbanicity.

SECTION 6 - SUMMARY AND CONCLUSIONS

This study has shown that there is a difference in cost, both in cost per day and cost per stay, between teaching and non-teaching hospitals arising from an indirect effect of teaching. In the cost per day regression, the addition of one resident or intern per 100 beds implies an increased cost of $14.84 per day per bed; in the cost per stay regression, the same increase implies a cost increase of $78.43 per stay. This increase in cost generally does not result from urbanicity, wage index, severity or occupancy rate between hospitals, but from the indirect costs arising because a hospital is involved in teaching. Some effect from urbanicity (both equations) and severity (per day equation) may be included in these estimates.

The other factor leading to higher costs in teaching hospitals is the average severity level of patients. This tends to be higher in teaching hospitals, and leads to both a higher cost in cost per day and cost per stay regression analysis.

This study has shown, as in the U.S. and Canada as a whole, that there are indirect costs involved in teaching in Nova Scotia hospitals. Any reimbursement from the provincial government "should not be described as subsidies for teaching but as legitimate payments"[24] for extra costs incurred by teaching hospitals.

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[24] LAVE, p. 2.

EXHIBIT 1

Table 1: Hospitals

Table 2: Hospital Data

Exhibit_1

Table_1

EXHIBIT 1

TEACHING HOSPITALS

HOSPITAL NO.	HOSPITAL NAME
16	Camp Hill Medical Centre
17	Izaak Walton Killam
26	Grace Maternity
28	Halifax Infirmary
36	Nova Scotia Rehabilitation Centre
54	Victoria General

NON-TEACHING HOSPITALS

HOSPITAL NO.	HOSPITAL NAME
11	Aberdeen
12	All Saints
13	Annapolis General
15	Buchanan Memorial
18	Colchester
19	South Shore Regional
20	Digby General
21	Eastern Kings
22	Eastern Memorial
23	Eastern Shore
24	Fisherman's Memorial
25	Glace Bay
27	Guysborough Memorial
30	Highland View
32	Lillian Fraser
33	Musquodobit Valley
34	Inverness Consolidated
35	North Cumberland Memorial
37	Hunts Community
38	Queen's General
39	Roseway
41	Harbour View
42	Glace Bay Community
43	Saint Martha's
45	Saint Mary's Memorial
46	Saint Rita's
47	Sacred Heart
48	Soldiers Memorial
49	South Cumberland
50	Sutherland Harris Memorial
51	Sydney City
52	Twin Oaks
53	Victoria County
55	Western Kings
56	Yarmouth Regional
57	Halifax Civic
58	Bayview Memorial
63	New Waterford
65	Dartmouth General
67	Valley Health Services
68	Strait-Richmond

EXHIBIT 1

TABLE 2

EXHIBIT 1

TABLE 2

	Hospital Averages Over All 46 Hospitals	5 Teaching Hospitals	41 Non-Teaching Hospitals
Average Bed Size	104.20	351.80	74.00
AIMSCDRG	1.92	2.27	1.72
AIMSCCMG	12.69	13.34	12.33
TOTSCALE	81.14	98.43	71.42
AVLOS (Average Length of Stay)	9.05	9.52	8.78
CST_DAY (cost per day)	363.51	579.52	337.16
CST_STAY (cost per stay)	3223.30	5235.92	2977.86
WG_INDEX	1.00	1.00	1.00
OCCU_RAT	0.6675	0.7046	0.6630

HOSPITAL	TEACH	BEDSIZE	AIMSCDRG	AIMSCMG	TOTSCALE	OCCU_RAT	URBPOP	AVLOS	CST_DAY	CST_STAY	WG_INDEX
11	0	207	1.75	11.08	70.50	0.6780	URBPOP1	8.56	362.75	3105.70	1.097
12	0	61	1.56	13.20	64.08	0.5164	URBPOP1	8.61	301.98	2600.90	1.016
13	0	26	1.51	13.05	63.74	0.6115	URBPOP1	7.10	341.60	2426.30	1.015
15	0	13	1.20	9.69	47.06	0.6436	URBPOP1	4.89	304.85	1492.00	0.925
16	1	216	2.36	16.08	99.15	0.7587	URBPOP2	13.38	547.33	7322.30	0.781
17	1	232	1.94	12.05	78.69	0.5678	URBPOP2	7.33	704.30	5165.60	1.078
18	0	184	1.66	11.80	69.57	0.7100	URBPOP1	8.45	318.09	2688.90	1.109
19	0	71	1.77	13.46	80.01	0.8480	URBPOP1	8.34	400.56	3341.80	1.150
20	0	65	1.60	11.78	64.43	0.7131	URBPOP1	10.40	294.99	3067.40	1.010
21	0	28	1.72	14.74	69.00	0.6473	URBPOP1	8.25	362.04	2986.20	1.024
22	0	15	1.47	11.15	55.34	0.6444	URBPOP1	5.14	295.12	1517.80	0.947
23	0	35	1.57	13.85	66.54	0.3037	URBPOP1	10.63	523.17	5561.40	0.950
24	0	59	1.83	13.91	76.45	0.6166	URBPOP1	7.98	407.10	3250.70	1.006
25	0	85	1.76	11.10	66.75	0.8378	URBPOP1	10.64	331.39	3524.50	0.994
26	1	126	0.14	14.29	38.70	0.6980	URBPOP2	5.80	614.38	3560.40	1.018
27	0	17	1.45	11.15	51.55	0.5352	URBPOP1	5.89	275.28	1620.90	0.942
28	1	385	2.06	10.86	83.76	0.7117	URBPOP2	8.43	470.62	3968.60	1.060
30	0	105	1.76	12.55	74.08	0.7091	URBPOP1	8.80	362.36	3187.00	1.115
32	0	29	1.61	13.02	61.89	0.7056	URBPOP1	6.84	242.71	1660.10	0.963
33	0	12	1.91	14.22	75.21	0.4260	URBPOP1	9.52	481.51	4584.20	0.949
34	0	75	1.62	12.14	67.13	0.7859	URBPOP1	11.74	269.47	3164.60	0.897
35	0	11	1.44	11.54	52.83	0.6132	URBPOP1	4.79	302.76	1450.20	0.971
37	0	106	1.71	12.36	68.56	0.5934	URBPOP1	8.18	294.87	2412.60	1.007
38	0	50	1.55	12.60	64.69	0.6585	URBPOP1	6.74	291.60	1965.30	1.047
39	0	56	1.44	11.23	54.77	0.5015	URBPOP1	7.26	450.64	3271.60	0.992
41	0	150	1.58	11.91	65.25	0.7572	URBPOP1	10.06	338.44	3405.60	0.988
42	0	139	1.73	12.65	70.96	0.5820	URBPOP1	11.13	340.69	3791.60	0.976
43	0	169	1.38	10.81	59.37	0.6903	URBPOP1	7.41	321.36	2381.70	1.064
45	0	15	1.79	13.79	73.62	0.7587	URBPOP1	9.80	225.16	2205.90	0.915
46	0	164	1.48	11.25	66.70	0.6432	URBPOP2	7.07	385.84	2728.80	1.104
47	0	23	1.58	12.55	62.25	0.8000	URBPOP1	7.65	339.37	2595.90	0.940
48	0	79	1.53	11.40	58.11	0.6980	URBPOP1	7.97	355.18	2831.00	1.033
49	0	16	1.78	14.72	73.85	0.8432	URBPOP1	10.05	217.61	2186.70	0.941
50	0	54	1.58	13.95	60.01	0.6548	URBPOP1	10.85	259.49	2814.50	0.955
51	0	153	2.59	13.86	110.15	0.7945	URBPOP2	9.50	438.61	4167.40	1.117
52	0	25	1.77	16.03	74.21	0.5719	URBPOP1	21.84	285.13	6226.40	0.954
53	0	23	1.49	12.43	55.78	0.6431	URBPOP1	7.05	250.90	1768.40	0.990
54	1	800	3.05	14.33	128.60	0.7866	URBPOP2	10.99	560.98	6162.70	1.041
55	0	63	1.64	11.96	64.60	0.6238	URBPOP1	9.31	327.08	3046.80	0.970
56	0	174	1.93	14.32	81.56	0.7706	URBPOP1	9.53	364.51	3472.10	1.056
57	0	52	1.30	9.25	58.37	0.5710	URBPOP2	9.70	284.87	2763.70	0.894
58	0	13	1.71	14.94	58.95	0.2797	URBPOP1	7.90	390.88	3087.50	0.871
63	0	64	1.56	11.51	63.35	0.8089	URBPOP1	8.34	319.76	2665.40	1.042
65	0	114	2.00	12.21	79.18	0.8043	URBPOP2	9.19	442.10	4062.50	1.049
67	0	204	2.01	13.62	89.16	0.7720	URBPOP1	9.87	390.27	3851.50	1.052
68	0	30	1.64	13.60	65.43	0.8157	URBPOP1	9.52	331.73	3158.80	1.005

EXHIBIT 2

EXCLUSIONS FROM COST DATA

EXHIBIT 2

EXCLUSIONS FROM COST DATA

COST CENTRE	HOSPITAL NAME
MEDICAL	St. Anne
NURSING EDUCATION-STAFF	Red Cross
RESPIROLOGIST	Cobequid Multi-Service
NURSING STUDENTS	Point Pleasant Lodge
TOTAL PORTABLE	Central Application Ctr
TOTAL DEPR. OR EQUIP.	N S Hearing/Speech Clinic
HOSPITAL GROSS	Cancer Treatment
CAPITAL EQUIPMENT	Nova Scotia
TOTAL NON-PORTABLE	Atlantic Child Guidance
DEPRECIATION/MAJOR EQUIP.	Metro Mental Health Plan
ADMIN/STAFF HEALTH	Cape Breton
PATHOLOGISTS	
GERONTOLOGIST	
PHARMACY INTERNS	
PHYSIOTHERAPY INTERNS	
O.T. INTERNS	
MEDICAL EDUCATION	
HOSPITAL MEDICAL STAFF	
ADMIN-MEDICAL STAFF OFF	
PATHOLOGIST/BIO-CHEM	
PATHOLOGIST/CYTOPATHOLOGY	
PATHOLOGIST/HAEMATOLOGY	
PATHOLOGIST/HISTOPATHOL	
PATHOLOGIST/MICROBIOLOGY	
PATHOLOGIST/VIROLOGY	
PATHOLOGIST/PUBLIC HEALTH	
NURSING EDUCATION/STUDENT	
DIETETIC INTERNS	
SCHOOL OF DIAGNOSTIC RAD.	
SCHOOL OF ULTRASOUND TECH	
OTHER EDUCATIONAL PROGRAM	
SCHOOL OF NUCLEAR MED.	
SCHOOL OF RESPIRATORY TECH	
PSYCHOLOGY INTERNS	
PHYSICIANS/PSYCHIATRISTS	
EXTENDED CARE-MEDICAL STF	
SCHOOL RESPIRATORY TECH	

EXHIBIT 3

DEPENDENT VARIABLES

EXHIBIT 3

DEPENDENT VARIABLES

1. Cost per day of stay* $\frac{\text{total cost}}{\text{total days of stay}}$

2. Cost per stay* $\frac{\text{total cost}}{\text{total discharges}}$

* Nova Scotia Rehabilitation Hospital had to be excluded from this analysis as it was an outlier. An outlier of this nature would skew the distribution.

EXHIBIT 4

SEVERITY SYSTEMS

Explanatory Variables

EXHIBIT 4

SEVERITY SYSTEMS

The following severity systems will be used to test the hypothesis that severity of illness is greater in teaching than in non-teaching hospitals.

1. ACUITY INDEX METHOD (AIM)

The goal of the AIM algorithm is to explain or account for variation in length of stay (LOS) and total charges within each diagnosis-related group (DRG). AIM utilizes DRG methodology and is entirely dependent on information contained in abstract summary data.

The ICD-9-CM diagnosis and procedure codes on the discharge abstract and the resultant DRG assignation are the fundamental elements used by AIM. Additional information includes patient's age and sex.

The AIM algorithm subdivides each DRG into five severity rankings: 1 (least severe) to 5 (most severe). Patients in a DRG for which no AIM index has yet been computed are assigned a "0".

2. Q-SCALE

Q-SCALE or TOTSCALE uses a small set of patient data elements including all diagnoses and procedures (coded in ICD-9-CM), the disease categories, the stage values (output from the Coded Staging software) and the DRG category to generate three severity scores. The Q-SCALE (Resource Index) is computed as the ratio between predicted charge and the average predicted charge across all adverse categories.

The DRGScale (within DRG Severity) is computed as the ratio between the predicted charge and the DRG Severity predicted mean charge and that number is multiplied by 100. The TOTScale (Overall Severity) is determined by the product of the DRGScale and DRG relative weight (which described the relative complexity of a particular DRG to the overall across DRGs).

Q-SCALE software assigns the principal disease/stage and a series of the Unrelated Diseases and the Stages to each patient record; computes the number of Unrelated Diseases, Q-SCALE and optionally the DRGScale and TOTScale; and returns the Primary Disease/Stage (Disease Category with the highest weight).[24]

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[24] A Disease Staging Product, Release 1.0. A Programmer's Guide, April 1988. Document provided by SysteMetrics.

EXHIBIT 5

OTHER EXPLANATORY VARIABLES

EXHIBIT 5

OTHER EXPLANATORY VARIABLES

BEDSIZE — total number of beds in the hospital

OCCU_RAT — occupancy rate of the hospital

$$\frac{\text{total separations} \times \text{AVLOS}}{\text{total \# of beds} \times 365 \text{ days}}$$

URBPOP1-URBPOP2 — variable for which total urban population of the interim census (1986) subdivision in which the hospital is located

URBPOP1	not located in Sidney, Halifax or Dartmouth
URBPOP2	located in Sidney, Halifax or Dartmouth

WG_INDEX — wage index for the hospital

$$\frac{\text{labour costs for the hospital}}{\text{average labour cost for all hospitals}}$$

EXHIBIT 6

TABLE 1: COST PER DAY

TABLE 2: COST PER STAY

EXHIBIT 6

TABLE 1

COST_PER_DAY

R-SQUARE	0.6834
ADJUSTED R-SQUARE	0.6608

VARIABLE	PARAMETER ESTIMATE	Pr > F
Intercept *	116.71	------
WG_INDEX	389.50	0.0042
OCCU_RAT	-254.18	0.0013
RES_INTN	14.84	0.0001

cost/day = 116.71 + 389.50(WG_INDEX) - 254.18(OCCU_RAT) + 14.84(RES_INTN)

* The intercept is the value of Y where the line crosses the Y-axis, that is, the value of Y when the variables have a value of zero.

EXHIBIT 6

TABLE 2

COST PER STAY

R-SQUARE	0.6037
ADJUSTED R-SQUARE	0.5754

VARIABLE	PARAMETER ESTIMATE	Pr > F
Intercept *	1487.88	------
TOTSCALE	50.32	0.0001
OCCU_RAT	-2829.66	0.0085
RES_INTN	78.43	0.0035

cost/stay = 397.91 + 50.32(TOTSCALE) - 2829.66(OCCU_RAT) + 78.43(RES_INTN)

* The intercept is the value of Y where the line crosses the Y-axis, that is, the value of Y when the variables have a value of zero.

EXHIBIT Z

EXPLANATION OF R^2

EXHIBIT 7

R^2 AND ADJUSTED R^2

R^2

R^2 measures the ability of the explanatory variables to explain the variation in costs. Variation in costs is how much the costs of individual hospitals differ from the average cost. It is a measure of the "goodness of fit" of the model or how well the model fits the data. An R^2 of 0.75 means that 75 percent of the variation in costs is explained by the model.

There are two types of regression analysis - time series and cross-sectional analysis. Time series analysis examines how variables grow over time. It typically has high R^2 values because both the explanatory variables and the dependent variable, in general, grow over time thereby making the model fit well. Cross-sectional analysis examines a group of variables at a single point in time. It is harder to get a high R^2 from cross-sectional analysis because it does not have the added explanatory power of growth. An R^2 of 0.3 or 0.4 can, at times, be considered very good in cross-sectional analysis.

ADJUSTED R^2

R^2 values can always be increased simply by adding more variables to the model even if the new variables have no theoretical relevance. This effect is corrected for in the adjusted R^2 value. Adjusted R^2 is one of the main statistics to focus on in the results tables.

EXHIBIT 8

EXHIBIT 8

TABLE 1

CORRELATION ANALYSIS

Spearman Correlation Coefficients / Prob > |R| under Ho: Rho=0 / N = 46

	AIMSCDRG	AIMSCCMG	TOTSCALE
AIMSCDRG aim*DRG weight	1.00000 0.0	0.50019 0.0004	0.93350 0.0001
AIMSCCMG aim*CMG weight	0.50019 0.0004	1.00000 0.0	0.43703 0.0024
TOTSCALE	0.93350 0.0001	0.43703 0.0024	1.00000 0.0
OCCU_RAT occupancy rate	0.37825 0.0095	0.06606 0.6627	0.38041 0.0091
RES_INTN residents/interns per 100 bed	0.29716 0.0449	0.17063 0.2569	0.28132 0.0582
BEDSIZE number of beds	0.40945 0.0047	-0.10541 0.4857	0.53326 0.0001
WG_INDEX wage index	0.22807 0.1274	-0.13279 0.3798	0.37780 0.0098
CST_DAY cost per day of stay	0.38890 0.0076	0.21105 0.1591	0.42744 0.0030
CST_STAY cost per dishcarge	0.64417 0.0001	0.38923 0.0075	0.66809 0.0001

EXHIBIT 8

TABLE 2

CORRELATION ANALYSIS

Spearman Correlation Coefficients / Prob > |R| under Ho: Rho=0 / N = 46

	OCCU_RAT	RES_INTN	BEDSIZE
AIMSCDRG aim*DRG weight	0.37825 0.0095	0.29716 0.0449	0.40945 0.0047
AIMSCCMG aim*CMG weight	0.06606 0.6627	0.17063 0.2569	-0.10541 0.4857
TOTSCALE	0.38041 0.0091	0.28132 0.0582	0.53326 0.0001
OCCU_RAT occupancy rate	1.00000 0.0	0.08423 0.5778	0.33194 0.0242
RES_INTN residents/interns per 100 bed	0.08423 0.5778	1.00000 0.0	0.49158 0.0005
BEDSIZE number of beds	0.33194 0.0242	0.49158 0.0005	1.00000 0.0
WG_INDEX wage index	0.27094 0.0686	0.12428 0.4106	0.64681 0.0001
CST_DAY cost per day of stay	-0.01542 0.9190	0.53011 0.0002	0.49157 0.0005
CST_STAY cost per dishcarge	0.11083 0.4634	0.46118 0.0013	0.54757 0.0001

EXHIBIT 8

TABLE 3

CORRELATION ANALYSIS

Spearman Correlation Coefficients / Prob > |R| under Ho: Rho=0 / N = 46

	WG_INDEX	CST_DAY	CST_STAY
AIMSCDRG	0.22807	0.38890	0.64417
aim*DRG weight	0.1274	0.0076	0.0001
AIMSCCMG	-0.13279	0.21105	0.38923
aim*CMG weight	0.3790	0.1591	0.0075
TOTSCALE	0.37700	0.42744	0.66809
	0.0098	0.0030	0.0001
OCCU_RAT	0.27094	-0.01542	0.11083
occupancy rate	0.0686	0.9190	0.4634
RES_INTN	0.12428	0.53011	0.46118
residents/interns per 100 bed	0.4106	0.0002	0.0013
BEDSIZE	0.64681	0.49157	0.54757
number of beds	0.0001	0.0005	0.0001
WG_INDEX	1.00000	0.39932	0.21616
wage index	0.0	0.0060	0.1491
CST_DAY	0.39932	1.00000	0.73333
cost per day of stay	0.0060	0.0	0.0001
CST_STAY	0.21616	0.73333	1.00000
cost per dishcarge	0.1491	0.0001	0.0

EXHIBIT 8

TABLE 4

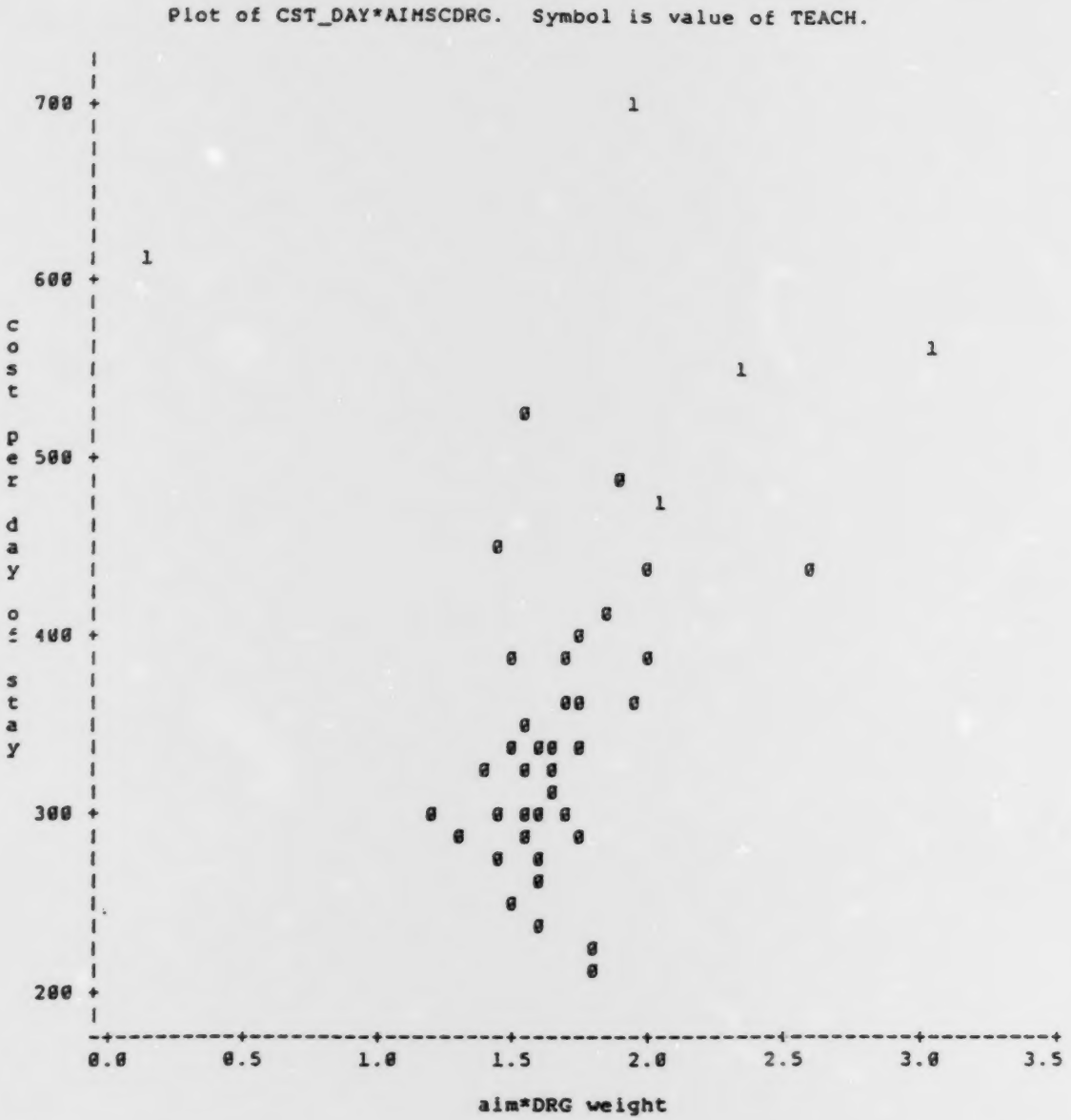
TABLE OF TEACH BY URBAN2

TEACH(teaching status)
URBAN2(urban pop of county, 2 levels)

Frequency Percent Row Pct Col Pct	URBPOP1	URBPOP2	Total
0	37 80.43 90.24 100.00	4 8.70 9.76 44.44	41 89.13
1	0 0.00 0.00 0.00	5 10.87 100.00 55.56	5 10.87
Total	37 80.43	9 19.57	46 100.00

EXHIBIT 8

TABLE 5



NOTE: 4 obs hidden.

EXHIBIT 8

TABLE 6

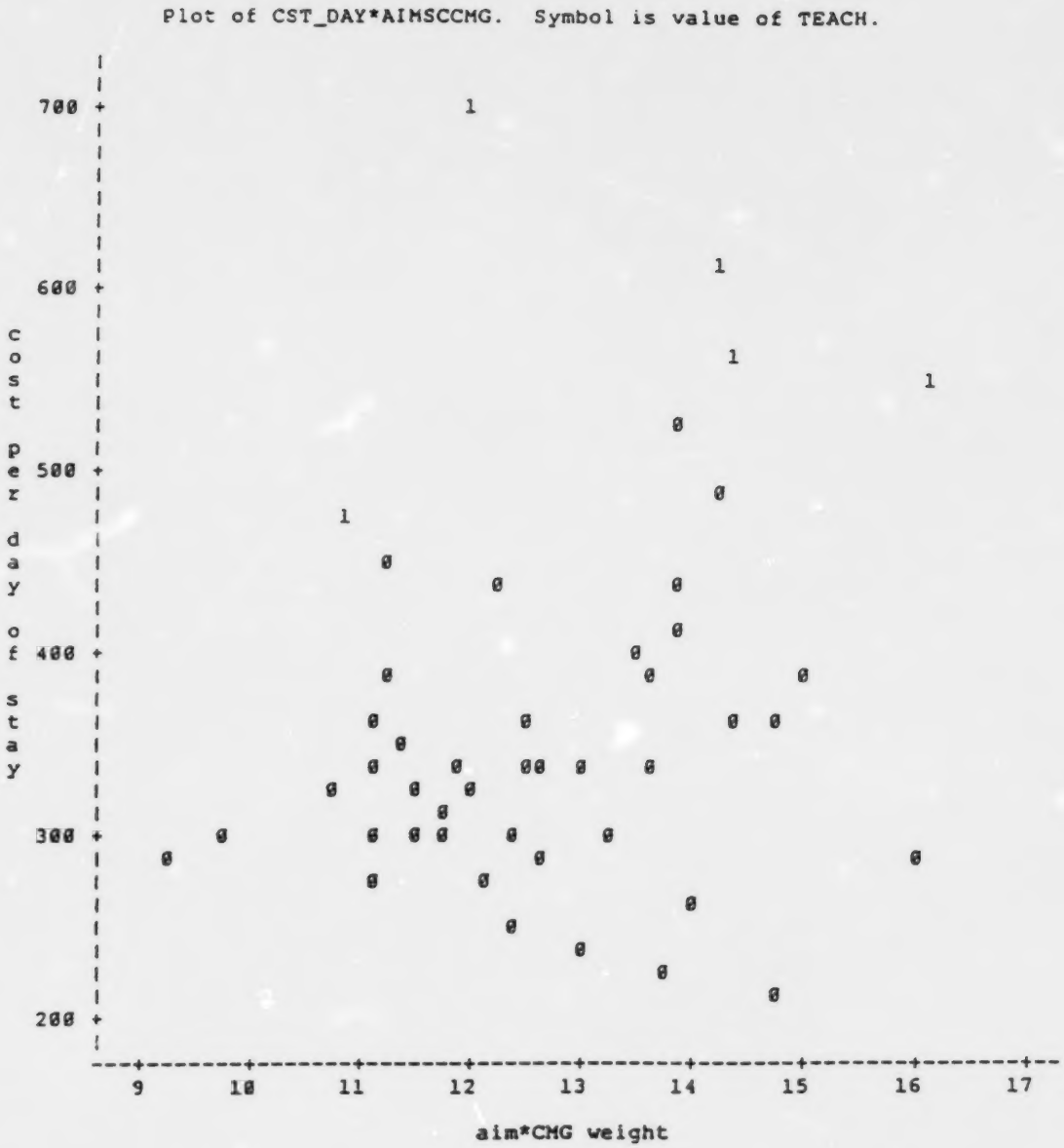
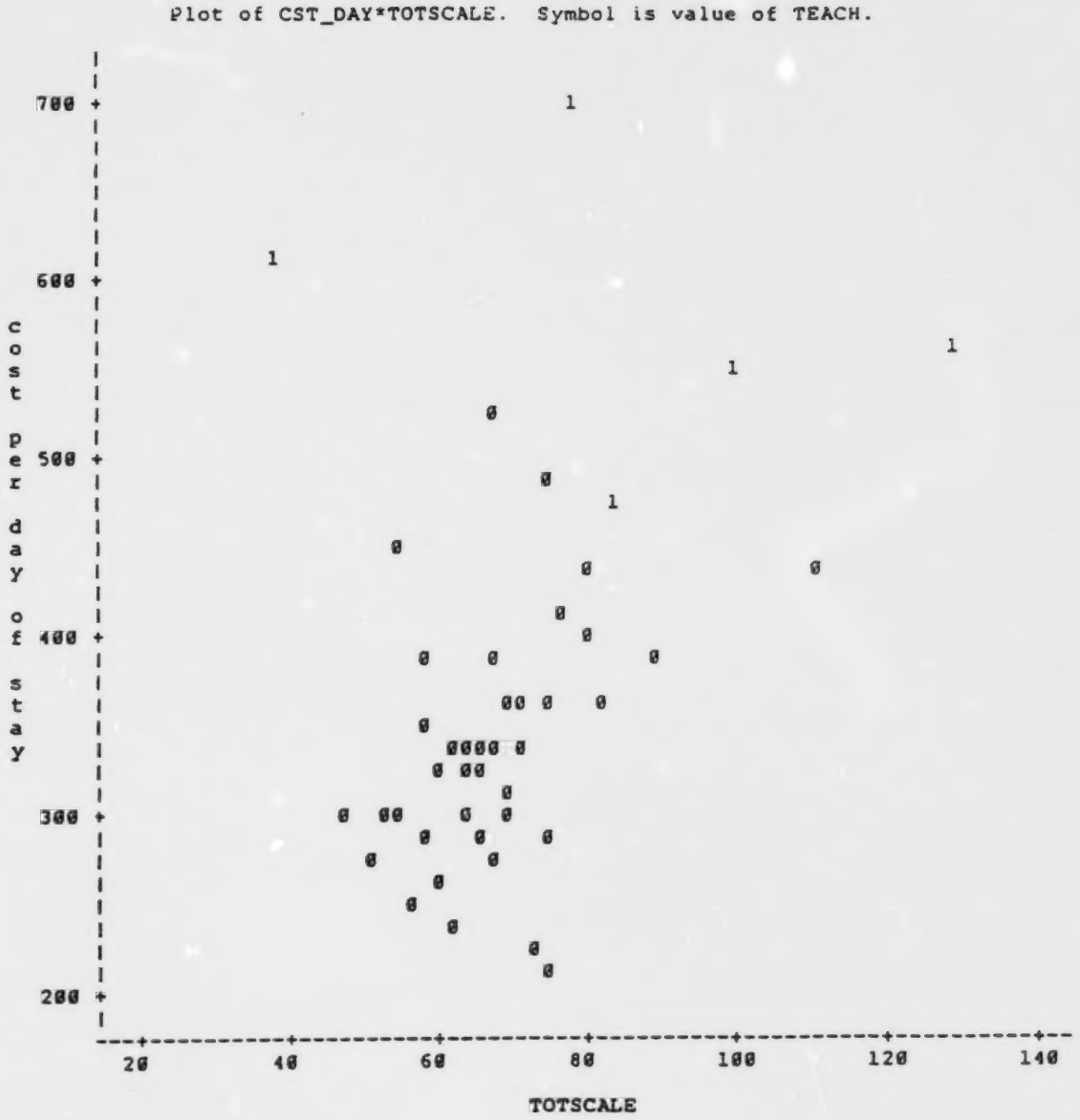


EXHIBIT 8

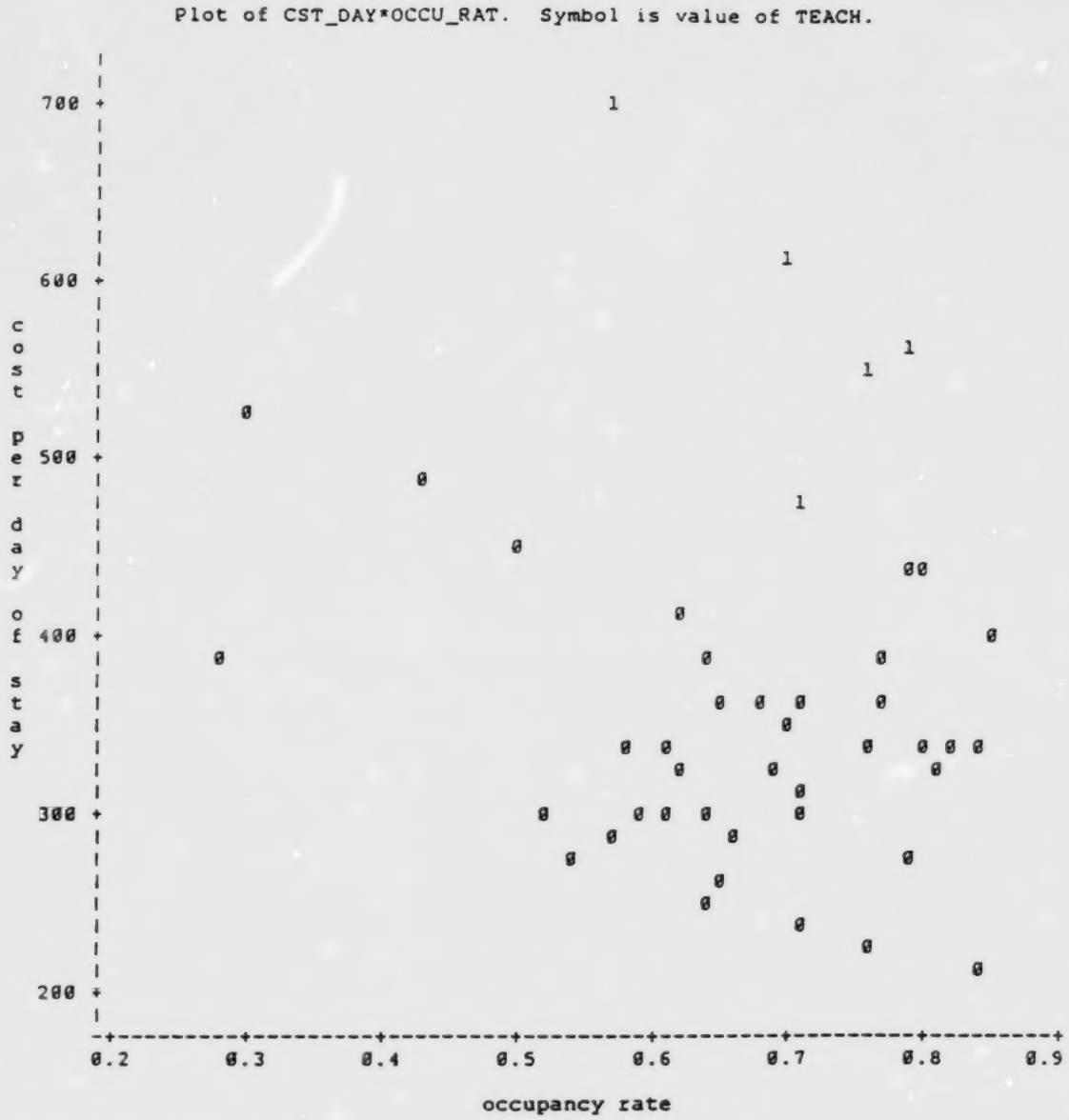
TABLE 7



NOTE: 2 obs hidden.

EXHIBIT 8

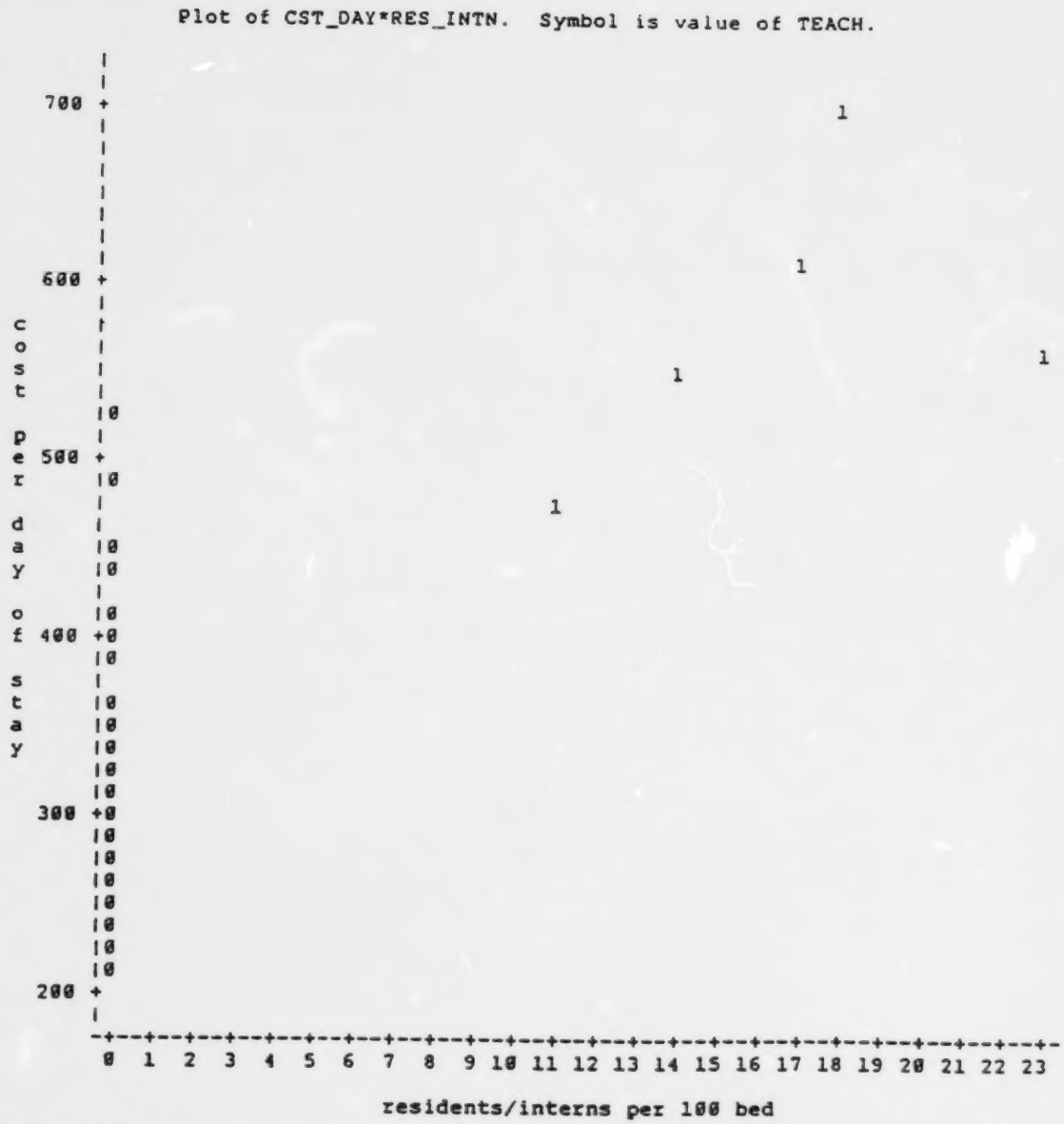
TABLE 8



NOTE: 2 obs hidden.

EXHIBIT 8

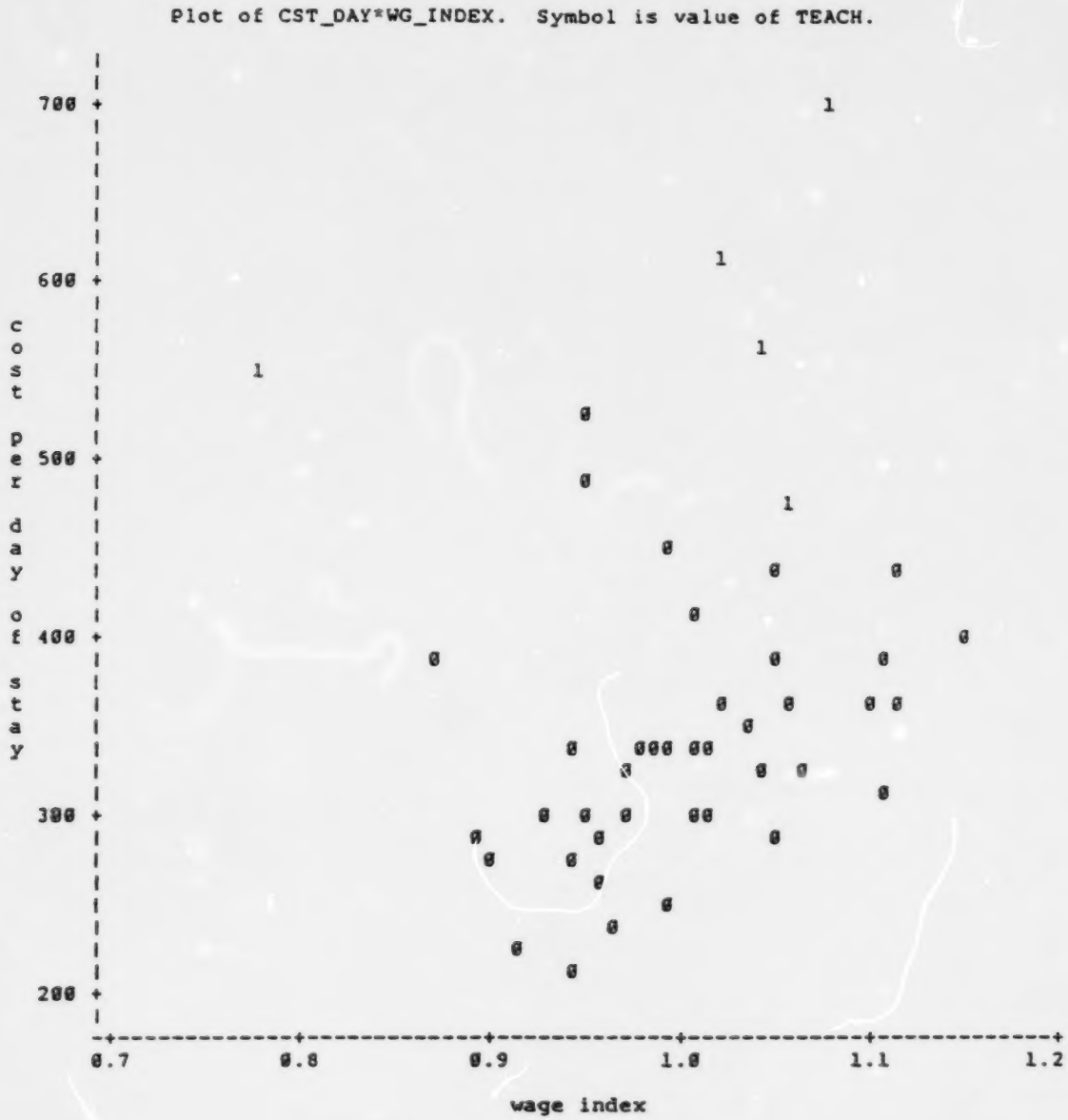
TABLE 9


Plot of CST_DAY*RES_INTN. Symbol is value of TEACH.
cost per day of stay
700
600
500
400
300
200
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
residents/interns per 100 bed

NOTE: 21 obs hidden.

EXHIBIT 8

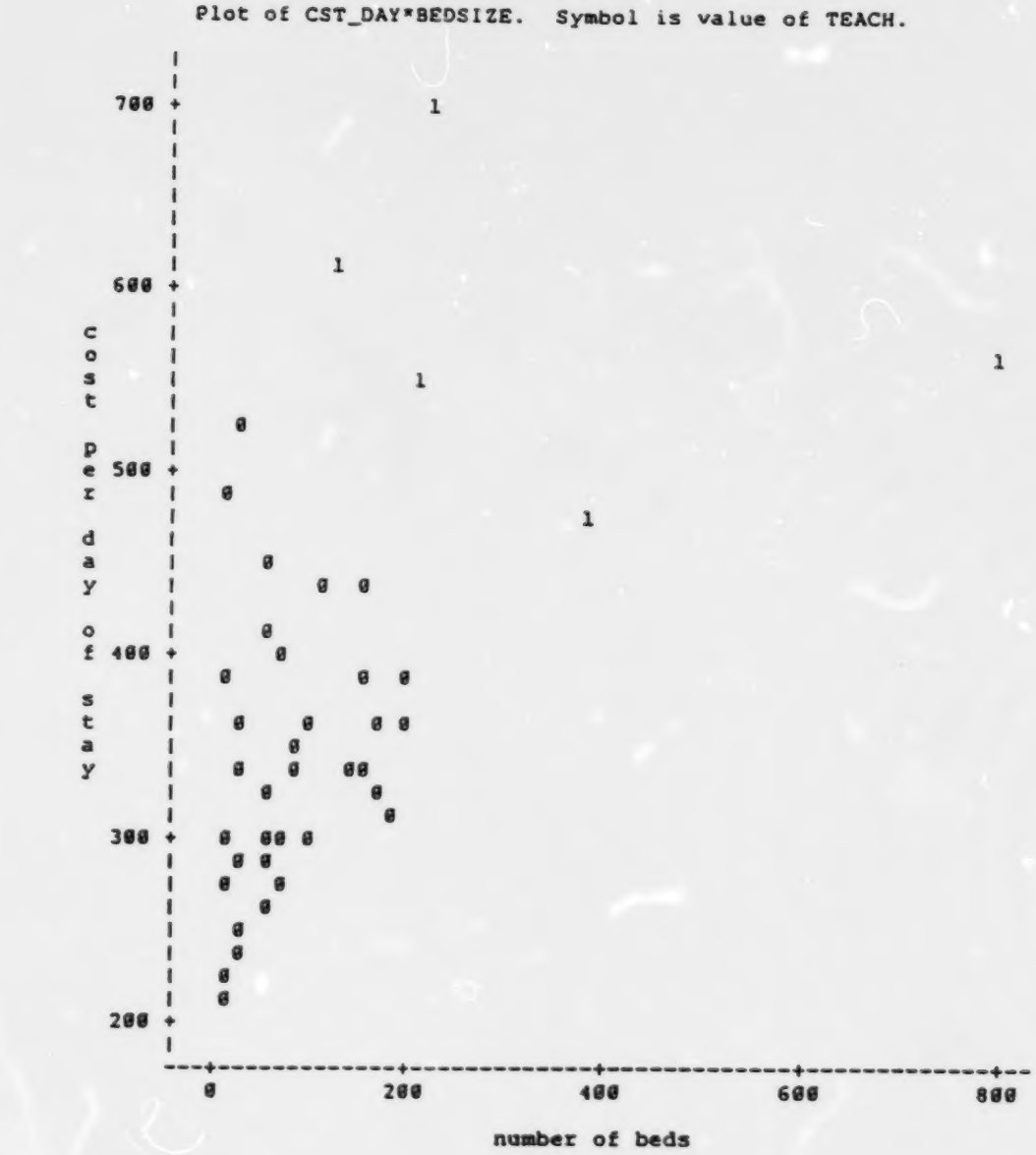
TABLE 10



NOTE: 1 obs hidden.

EXHIBIT 8

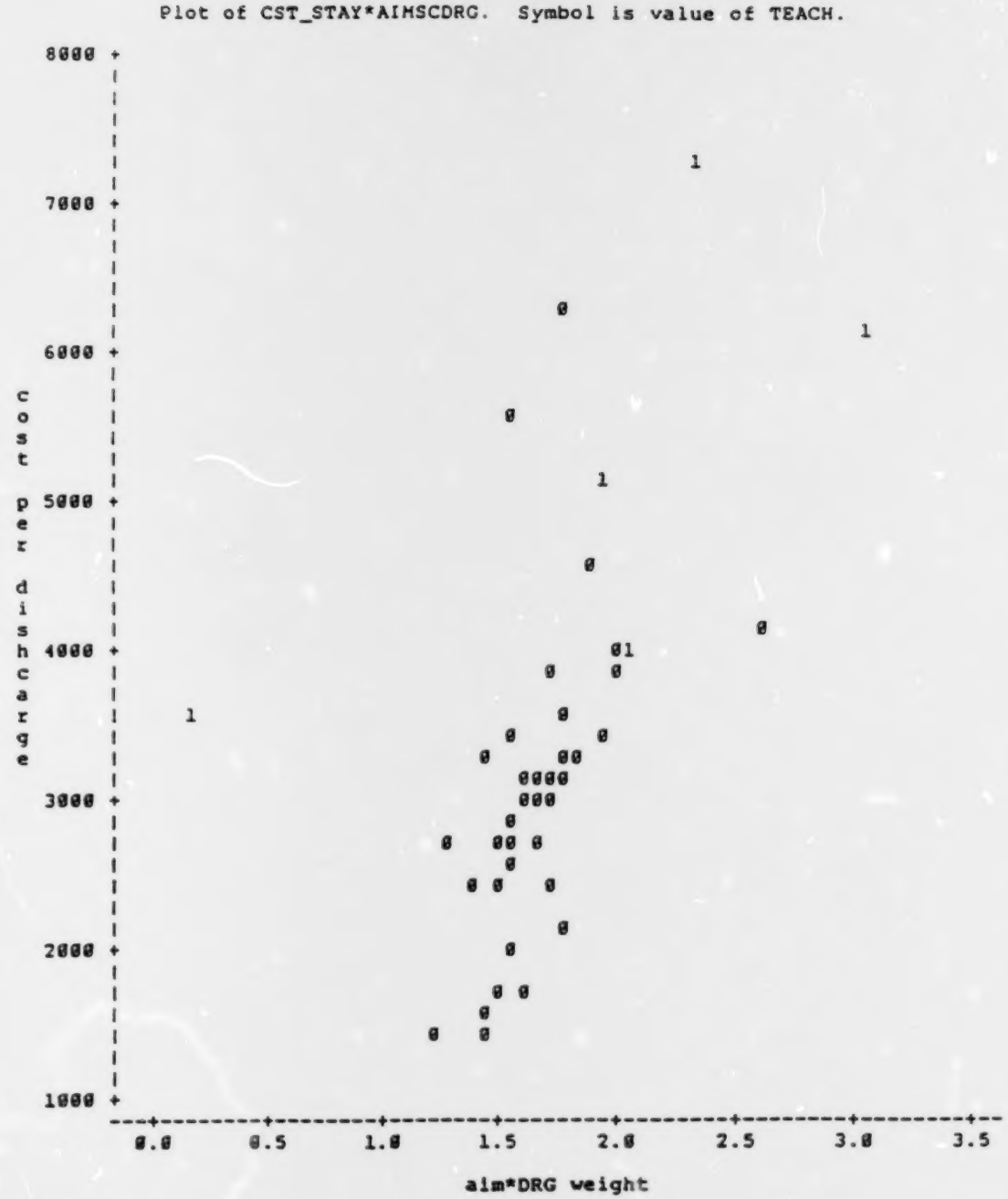
TABLE 11



NOTE: 6 obs hidden.

EXHIBIT 8

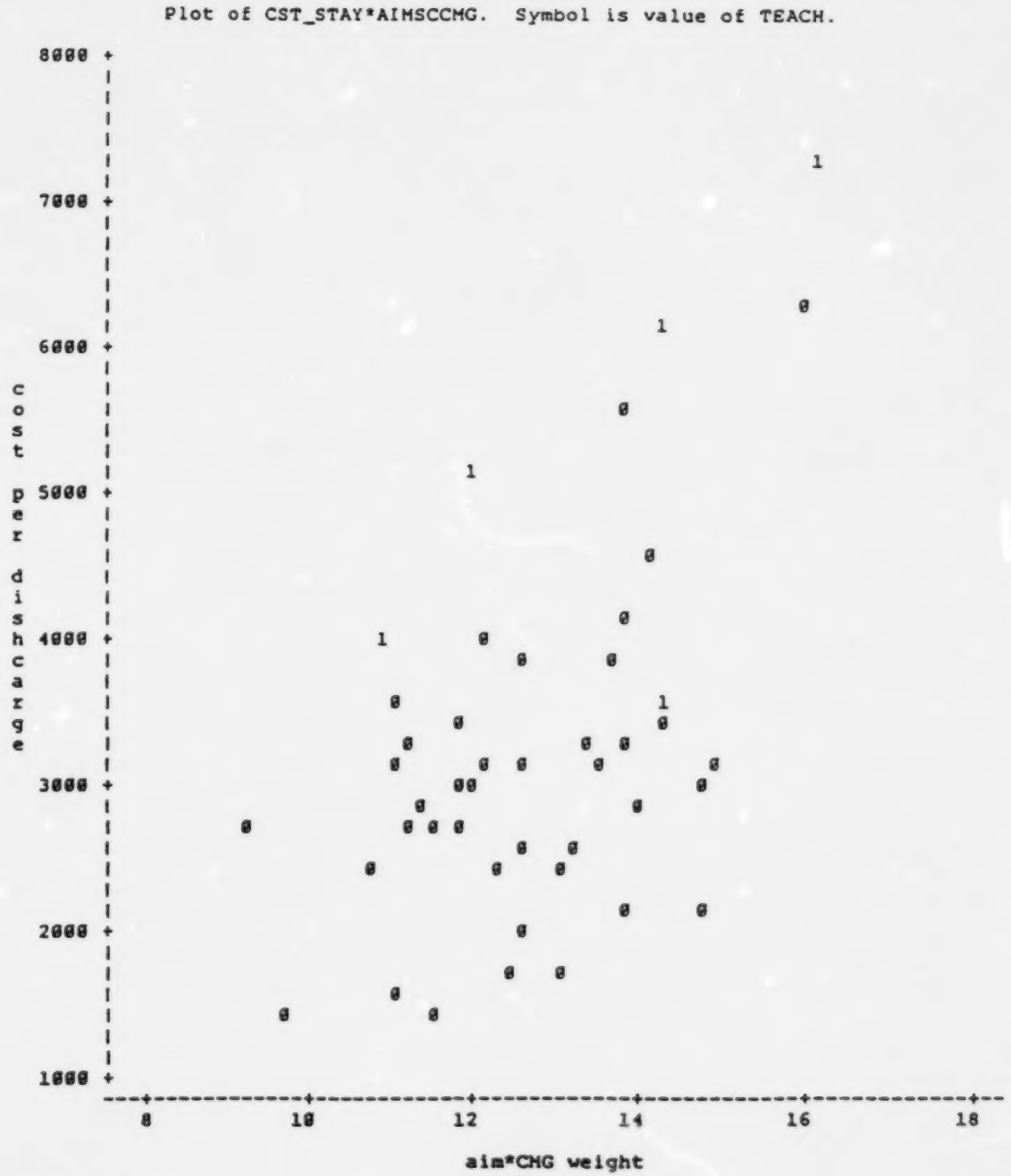
TABLE 12



NOTE: 5 obs hidden.

EXHIBIT 8

TABLE 13



NOTE: 1 obs hidden.

EXHIBIT 8

TABLE 14

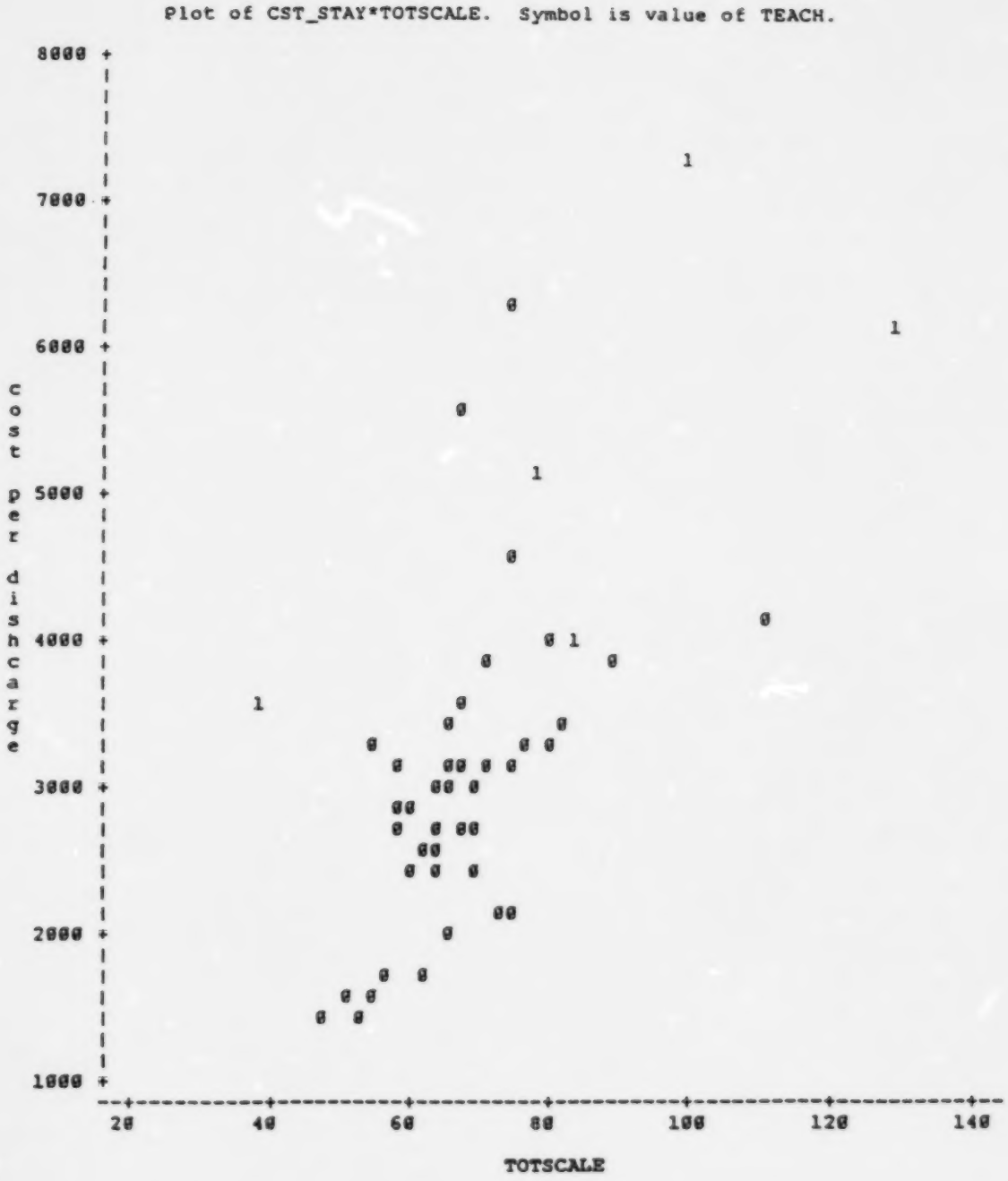


EXHIBIT 8

TABLE 15

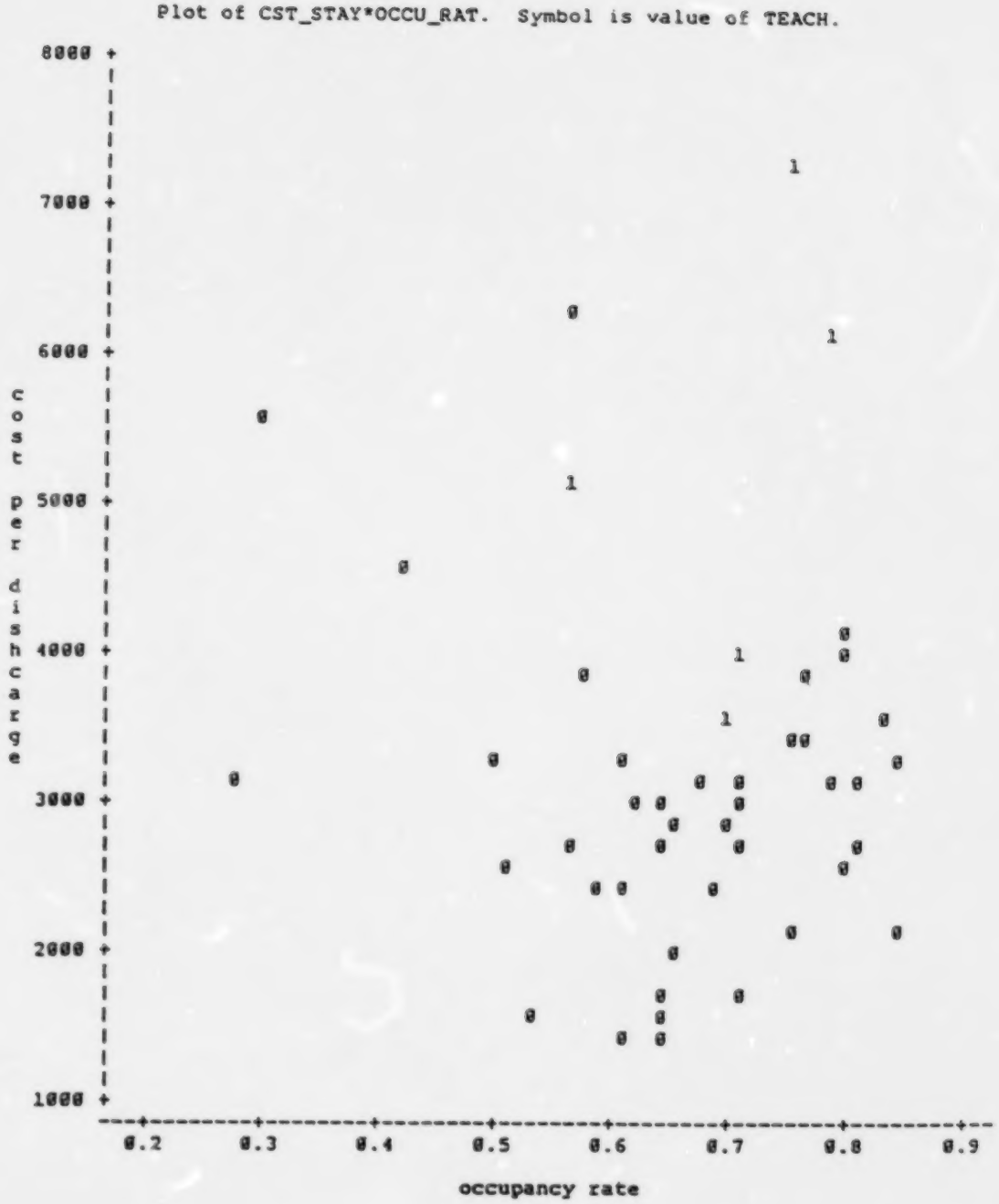
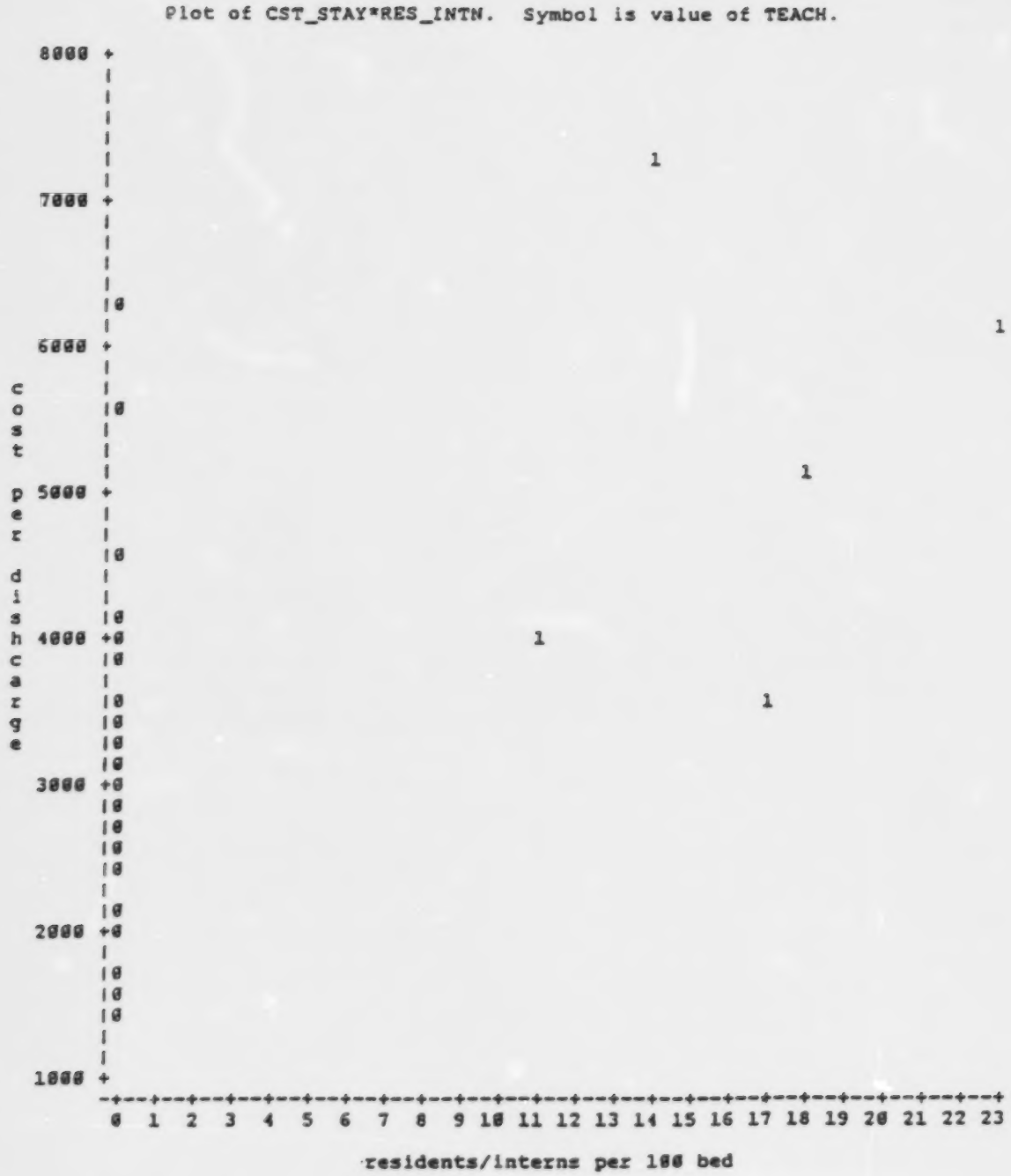


EXHIBIT 8

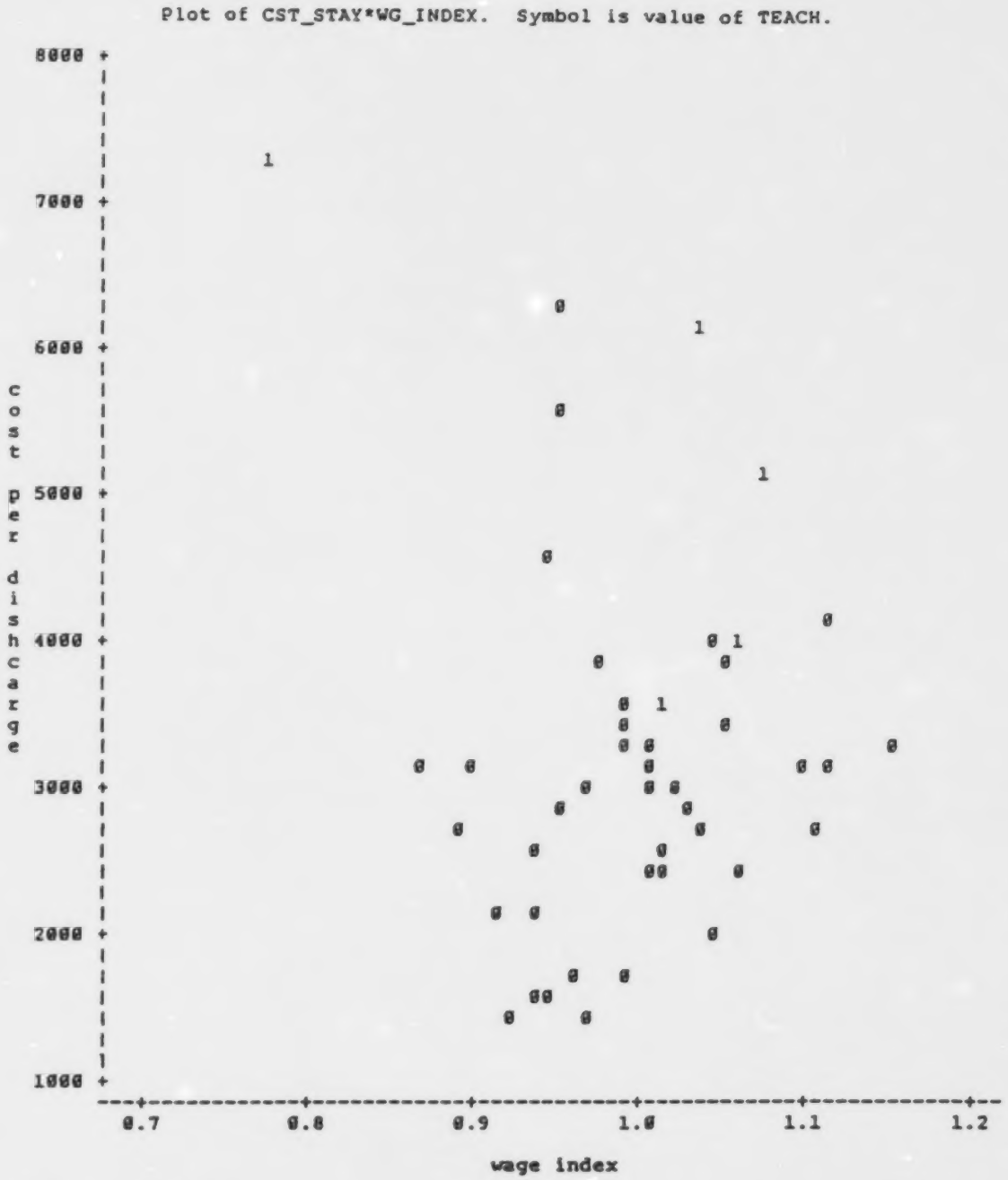
TABLE 16



NOTE: 21 obs hidden.

EXHIBIT 8

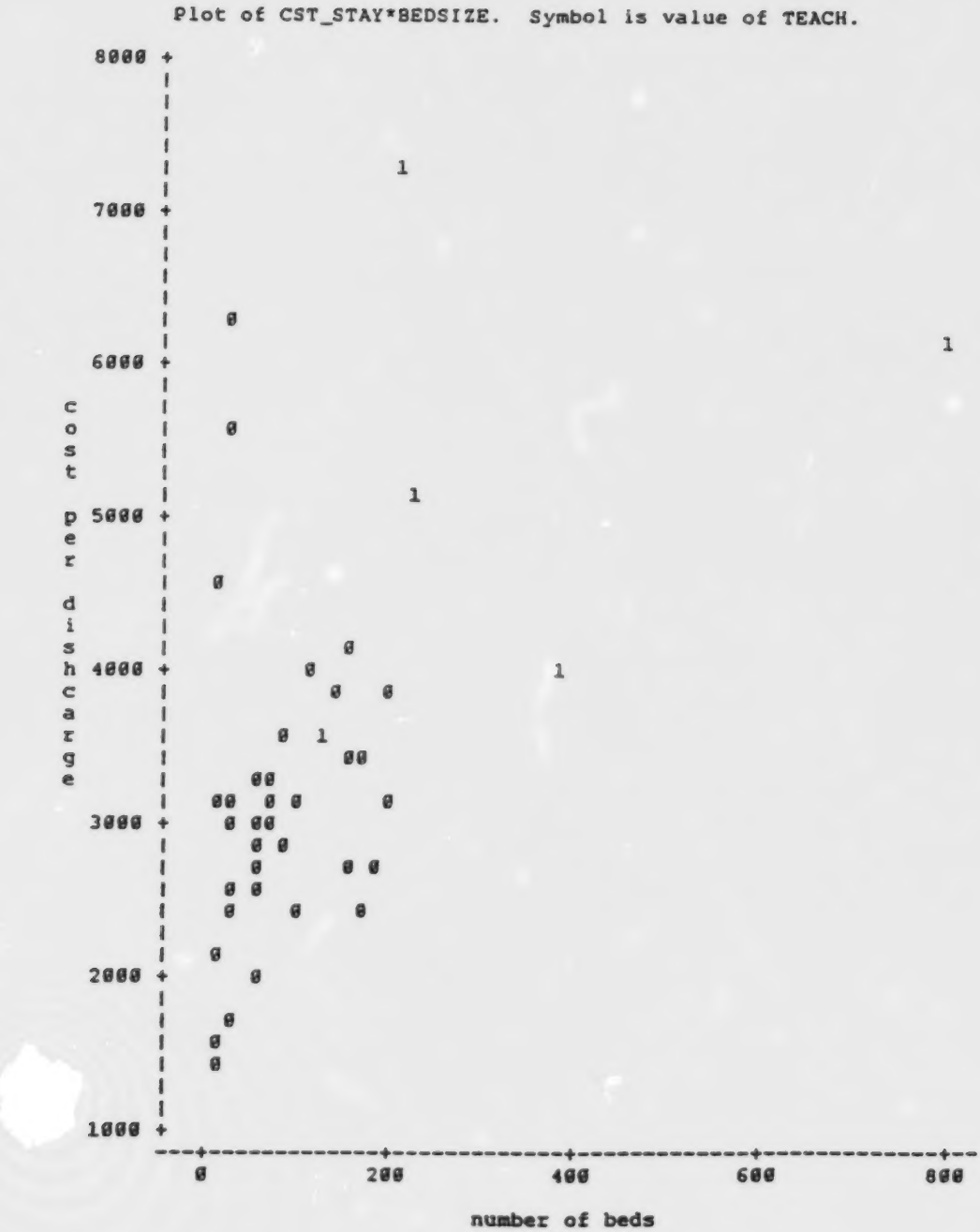
TABLE 17



NOTE: 1 obs hidden.

EXHIBIT 8

TABLE 18



NOTE: 6 obs hidden.

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THE ECONOMIC IMPACT OF PUBLIC EXPENDITURES ON HEALTH CARE IN NOVA SCOTIA

PREPARED FOR:

THE ROYAL COMMISSION ON HEALTH CARE

PREPARED BY:

GARDNER PINFOLD CONSULTING ECONOMISTS LIMITED

JULY 7, 1989

Draft Press Release

Gardner Pinfold Consulting Economists Limited has completed a study for the Royal Commission on Health Care concerning the economic impact on Nova Scotia of public health care expenditures.

In reviewing expenditure trends over the past two decades, the consultants note that health care costs have been one of the central issues confronting governments in Canada, generally. The report shows that the period of rapidly rising costs ended in the early 1980s, and though costs have continued to rise since then, they have stabilized relative to the growth in the economy generally, as measured by Gross Domestic Product (GDP). In Nova Scotia, health care expenditures have been stable at about 11.0 percent of provincial GDP since 1983. The corresponding average for Canada is 8.6 percent.

The consultants go on to point out that the higher proportion of GDP accounted for by health care in Nova Scotia is due, not to higher costs, but to weaker economic performance. Nova Scotia per capita health expenditures are some 10 percent lower than the Canadian average. But the province's per capita GDP is only about two-thirds the national average.

While costs have stabilized with respect to GDP, they are occupying an increasing share of the provincial budget. Between 1978 and 1987, health care expenditures went from 24 to 28 percent of total expenditures. In assessing this trend, the consultants emphasize that the critical question is whether government's ability to pay is threatened.

They note that the province is running a deficit on current account, and that this would appear to suggest there are difficulties, at least in the near term. But as they explain, these difficulties apply to all aspects of the public sector, not just to health care. Were health costs increasing more rapidly than GDP, there might be cause for concern. But they are not. Government's inability to match revenues and expenditures is a general one. In other words, it could be argued not only that Nova Scotia has too many doctors and hospital beds, but too many teachers, highway workers, civil servants, and so on.

In their report, the consultants show that the health care industry is a major source of employment and income in Nova Scotia. Some of the highlights from the report are:

- In 1986, the $863 million the provincial government spent on health care directly created the equivalent of an estimated 19,000 full-time jobs and generated about $600 million in personal income among health care professionals.

- Health care represents about 5 percent of total employment in the province and accounts for about 9 percent of total income from employment.

- Health care employment exceeds by a substantial margin employment in each of the primary sectors: forestry, fishing, mining and agriculture.

- Incomes of health professionals in 1986 ranged from an average of $25,000 for those in administration, to an average of $74,000 for physicians, with an overall average of $31,570. Average income in Nova Scotia in general in 1986 was $19,125.

- The regional distribution of health care services and expenditures is weighted heavily towards the Halifax region. This reflects the role the city plays as a regional medical treatment, training and research centre, and as the centre of health care administration. Halifax accounts for about 55 percent of annual expenditures, with the Cape Breton region second at 16 percent.

- The relative importance of health care as a source of employment and income varies widely by region. It is greatest in Halifax, where health care accounts for over 7 percent of employment and over 10 percent of income. In Cape Breton, it accounts for close to 6 percent of employment and over 10 percent of income. In the other regions of the province, health care accounts for between 2 and 5 percent of employment and between 6 and 8 percent of income.

- Using an input-output model of the Nova Scotia economy, the consultants estimate that the total direct spending of $863 million in 1986 generated $1,320 million in GDP. Over $725 million of this arose from direct activity in the health care sector, with the balance generated elsewhere in the economy mainly through the multiplier effect.

- Health care spending created the equivalent of 36,400 full-time jobs, 19,000 directly in health care and 17,400 elsewhere in the economy. Most of the employment created outside health care occurs in occupations which benefit from the spending of direct incomes. The consultants note that indirect impacts from health care spending are small because a high proportion of goods and services used in the health care sector are imported to the province.

- In a final point, the report indicates that tax revenues attributable to health expenditures represent a significant proportion of these expenditures. Of the $863 million spent on health care by the provincial government in 1986, an estimated $207 million, or 24 percent, was recovered through provincial and federal sales and income tax revenue in Nova Scotia. The provincial tax revenues covered an estimated 20 percent of Nova Scotia's share of the $863 million, while federal revenues covered about 28 percent of the federal share.

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Summary

Health Care Expenditures in Perspective

One of the central issues confronting governments in Canada over the past two decades has been rising health care costs. The basic issue may be expressed in the form of the following question: How fast have health care costs been rising and are they threatening government's ability to pay?.

The data indicate that the period of rapidly rising costs ended in the early 1980s. Since then, costs as a proportion of Nova Scotia's Gross Domestic Product (GDP) have stabilized at about 11.0 percent. The corresponding average for Canada is 8.6 percent. The relatively higher proportion of GDP accounted for by health care in Nova Scotia is due, not to higher costs, but to the province's relatively weak economic performance. Nova Scotia per capita health expenditures are about 9 percent lower than the Canadian average. But Nova Scotia's GDP is only about two-thirds the national average.

While costs have stabilized with respect to GDP, they are occupying an increasing share of the provincial budget. Between 1978 and 1987, health care expenditures went from 24 to 28 percent of total expenditures. Whether this is excessive is impossible to say, since there is no standard against which to compare. The critical question is whether government's ability to pay is threatened.

That the province is running a deficit on current account suggests there are difficulties, at least in the near term. But these difficulties apply to all aspects of the public sector, not just to health care. Were health costs increasing more rapidly than GDP, there might be cause for concern. But they are not. Government's inability to match revenues and expenditures is a general one. In other words, it could be argued not only that we have too many doctors and hospital beds, but there are too many teachers, highway workers, civil servants, and so on.

Economic Impacts of Health Care Expenditures

The health care industry is a major source of employment and income in Nova Scotia. In 1986, public spending on health care created the equivalent of an estimated 19,000 full-time jobs and $602 million in personal income. To put these figures in perspective:

- health care represents about 5 percent of total employment in the province and accounts for about 9 percent of total income from employment;
- health care employment exceeds by a substantial margin employment in each of the primary sectors: forestry, fishing, mining and agriculture;
- incomes of health professionals in 1986 ranged from an average of $25,000 for those in administration, to an average of $74,000 for physicians, with an overall average of $31,570. Average income in Nova Scotia in general in 1986 was $19,125.

The regional distribution of health care services and expenditures is weighted heavily towards Halifax. This reflects the role the city plays as a regional medical treatment, training and research centre, and as the centre of health care administration. The Halifax region accounts for about 55 percent of annual expenditures, with Cape Breton second at 16 percent. The regional distribution of employment and income follow closely the distribution of expenditures: Halifax accounts for 56 percent of employment and about 53 percent of income; Cape Breton follows at 15 and 17 percent, respectively.

The relative importance of health care as a source of employment and income varies widely by region. It is greatest in Halifax, where health care accounts for over 7 percent of employment and over 10 percent of income. In Cape Breton, it accounts for close to 6 percent of employment and over 10 percent of income. In the other regions of the province, health care accounts for between 2 and 5 percent of employment and between 6 and 8 percent of income.

The overall economic impact of health care expenditures is estimated using an input-output model of the Nova Scotia economy. The total direct spending of $863 million in 1986 generated $1,320 million in GDP. Over $725 million of this arose from direct activity in health care, with the balance generated elsewhere in the economy mainly through the multiplier effect.

Health care spending created the equivalent of an estimated 36,400 full-time jobs, 19,000 directly in health care and 17,400 elsewhere in the economy. Most of the additional employment falls into the induced category, occurring in occupations which benefit from the spending of direct incomes. The indirect impacts from health care spending are small because such a high proportion of goods and services used in the health care sector are imported to the province.

Of the $863 million spent on health care by the provincial government in 1986, an estimated $207 million, or 24 percent, was recovered in the form of provincial and federal tax revenue in Nova Scotia. Of the $207 million, about $94 million accrued to the provincial government and $113 million to the federal government. Provincial tax revenues covered an estimated 20 percent of Nova Scotia's share (53.5 percent) of the $863 million, while federal revenues covered about 28 percent of the federal share (46.5 percent).

CHAPTER ONE
INTRODUCTION

1. Overview

This report provides an assessment of the significance of the health care industry in Nova Scotia from an economic perspective. The focus of the study is on the supply side of the industry, which in its broadest sense, includes all aspects of the delivery of services whether funded publicly or from private sources. This report is concerned with measuring the impact of public expenditures only. More specifically, it is concerned with the impact of expenditures made by the provincial Department of Health and Fitness. These make up about 70 percent of total health care expenditures in Nova Scotia (a further 5 percent from direct federal payments and the balance being almost exclusively private). Public expenditures cover health programs (general and psychiatric hospital services and community health); health services and insurance (medical, optometric, dental, pharmacare and other services); and, the Nova Scotia Commission on Drug Dependency.

Our general approach is to consider health care as conceptually similar to any other industry or sector in the economy. There are "consumers" (patients) who demand a product or service (in this case health care), and there are "firms" (doctors, clinics, pharmacies, hospitals, etc.) supplying the product or service. The primary focus of the study is the supply side of the industry, and in particular, on the economic impact arising from *operating costs* -- the current account expenditures on the goods and services supplied. The analysis is conducted for the 1986/87 fiscal year, the latest year for which all the data necessary to measure impacts are available.

A secondary focus is on the economic impact arising from *capital costs* -- the expenditures for constructing and equipping hospitals and related facilities. Such expenditures vary widely from year to year. To avoid any bias based on the arbitrary selection of a particular year, the analysis is conducted using average expenditures for the 1978-87 period.

In assessing economic impact, we follow conventional practice and first measure the direct income and employment generated by the activity. Income and employment levels are then compared with corresponding totals at the regional and provincial level to obtain a measure of relative importance. We then expand the scope of the analysis and examine the broader effects on the economy, the so-called "multiplier effects". These

effects capture the contribution health care expenditures make to provincial gross domestic product, and also capture the returns to government in the form of tax revenues. The latter is of particular interest because it allows an estimate to be made of the net cost of public health care expenditures. These impacts are measured using an input-output model and are measured at the provincial level; limitations of the model prevent the estimation of impacts on a regional basis.

To avoid any confusion about the scope of this report, it is worth making two points of clarification about what we are *not* attempting to do. First, this assessment is of the economic impact of the *supply* of health care services; it is not concerned about the economic benefits to be derived from a healthier population. While this is clearly a matter of considerable importance, it lies outside our terms of reference. Second, the report is not concerned about the *economic efficiency* with which health care services are delivered. In a general sense, economic efficiency is concerned with how to combine limited resources (inputs) so as to maximize desired outputs. This is a key question before this Commission, but one that lies beyond our terms of reference.

How the Report is Organized

The report has three chapters. Following this Introduction, health care expenditures are examined from several perspectives in Chapter Two. We begin by comparing the relative growth of expenditures in the context of general economic growth as measured by gross domestic product. Changes in the relative public and private shares of health care expenditures are then reviewed. This is followed by a brief assessment of the relative changes in categories of expenditure. Finally, Chapter Two provides an examination of health care expenditures in the context of the Nova Scotia budget, and reviews expenditures by program and type of service.

Chapter Three provides estimates of the employment and income generated by public expenditures on health care, and examines their significance initially from a provincial perspective and then from a regional one. Estimates of the overall economic impact of expenditures are then provided. These estimates are generated using an input-output model. The model is explained and the results reviewed.

CHAPTER TWO
HEALTH CARE EXPENDITURES IN PERSPECTIVE

1. Public and Private Expenditures

Comparisons with Gross Domestic Product

The relative significance of health care expenditures may be put into perspective by a comparison with a broad measure of economic activity such as gross domestic product (GDP). Total *private and public* health care expenditures (excluding capital items) in Nova Scotia accounted for 10.9 percent of provincial GDP in 1985 (Table 2-1). The corresponding figure for Canada as a whole was about 8.6 percent. The difference reflects the economic disparities between Nova Scotia and the central and western Canadian provinces[1], not differences in the level of health care spending. Indeed, expenditures per person in 1985 were about nine percent lower ($1,430 vs. $1,568) in Nova Scotia than the Canadian average (Health and Welfare Canada, 1987).

Table 2-1
Total Health Care Expenditure and
Provincial Gross Domestic Product in Nova Scotia, 1975-1985

Year	Health Care (1)		GDP (2)		Nova Scotia Health Care as a % of GDP	Canada Health Care as a % of GDP (4)
	$ Million	% Change	$ Million	% Change		
1975	393		3,895		10.1	7.2
1976	452	15.0	4,529	16.3	10.0	7.3
1977	482	6.6	4,942	9.1	9.8	7.3
1978	529	9.8	5,559	12.5	9.5	7.3
1979	589	11.3	6,132	10.3	9.6	7.2
1980	670	13.8	6,368	3.8	10.5	7.5
1981	815	21.6	7,375	15.8	11.1	7.7
1982	953	16.9	8,394	13.8	11.4	8.6
1983	1,051	10.3	9,428	12.3	11.1	8.8
1984 (3)	1,168	11.1	10,441	10.7	11.2	8.7
1985 (3)	1,259	7.8	11,500	10.1	10.9	8.6

Note: 1) Represents the total expenditures from public and private sources. Figures are in current dollars.
2) Figures are in current dollars.
3) Provisional.
4) Canadian health care as a percentage of Canadian GDP.

Sources: Health and Welfare Canada,"National Health Expenditures in Canada, 1975-1985", Table 24; and, Department of Finance Canada, "Economic Review, April 1985", Reference Table 8.

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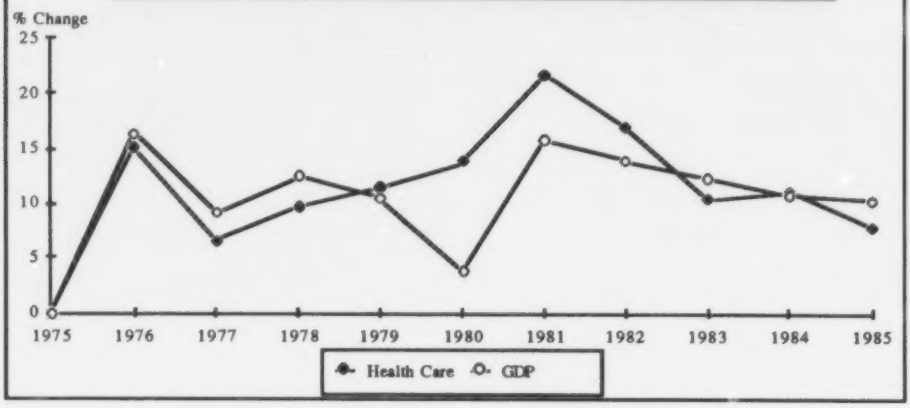
1 Nova Scotia's per capita GDP is about two-thirds as great as the national average.

Expenditures as a percentage of GDP remained fairly stable in Nova Scotia during the mid-1980s, following several years of relative increase. The relative growth began in the late 1970s as health care expenditures, fuelled mainly by inflationary pressures, outstripped increases in GDP for four successive years. Between 1977 and 1981, the annual increase in health care expenditures grew steadily from 6.6 to 21.6 percent (Figure 2-1). Slower average growth in GDP meant that expenditures as a percentage of GDP increased by almost two full percentage points (from 9.5 to 11.4 percent) between 1978 and 1982 (Table 2-1). Over the same period, relatively stronger GDP growth at the national level meant that the national health care share of GDP grew more modestly (from 7.3 to 8.6 percent).

Figure 2-1: Annual Growth Rates of Nova Scotia Health Care Expenditures (Public and Private) and Provincial GDP, 1975-1985



Source: Table 2-1.

Sources of Expenditure

Although total health care expenditures more or less tripled during the 1975-1985 period, their distribution by sector (i.e., federal, provincial and private) remained fairly stable (Table 2-2). In Nova Scotia, the provincial government's share of expenses ranged between 67.2 and 71.3 percent of the total, finishing the decade at 68.6 percent. Private expenses ranged between 22.0 and 24.8 percent. The private share for Nova Scotia in 1985 was the same as the average for Canada (24.8 percent). The balance of expenditures are accounted for by direct federal grants (about five percent) and local government expenses (about one percent).

Table 2-2
Percentage Shares of Health Care Expenditure by Source in Nova Scotia, 1975-1985

Sector	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Federal Govn't Direct Expenses	6.1	5.9	6.0	5.0	4.6	4.3	4.4	4.8	5.0	5.0	4.9
Provincial Govn't Expense	68.1	67.2	69.8	70.3	70.4	71.1	71.1	71.2	71.3	70.4	68.6
Provincial Contribution (1)	*57.6*	*55.5*	*51.7*	*49.5*	*48.4*	*48.9*	*53.7*	*56.0*	*55.8*	*55.7*	*53.5*
Federal Contribution (1)	*42.4*	*44.5*	*48.3*	*50.5*	*51.6*	*51.1*	*46.3*	*44.0*	*44.2*	*44.3*	*46.5*
Provincial Transfer to Local Govn't	1.0	0.6	0.2	0.1	0.2	0.2	0.6	0.3	-	-	-
Worker's Compensation Expense	0.6	0.6	0.7	0.7	0.8	0.7	0.7	0.7	0.7	0.7	0.7
Local Government Expense	2.3	2.2	0.8	1.2	0.1	0.6	1.3	0.9	1.0	0.9	1.0
Private Expense	22.9	24.1	22.7	22.8	24.1	23.3	22.5	22.4	22.0	23.0	24.8
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Note: 1) Shows the respective provincial and federal shares of provincial expenditures.

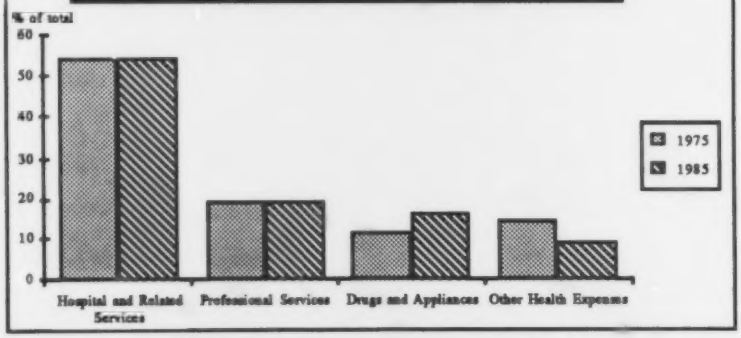
Sources: Health and Welfare Canada,"National Health Expenditures in Canada, 1975-1985", Table 80.

Categories of Expenditure

Personal health care (i.e., hospitals, physicians and drugs) accounted for just over 90 percent of total expenditures in Nova Scotia in 1985. The remaining 10 percent was made up of capital, administration and public health. The corresponding proportions in 1975 were 85 and 15 percent.

Hospitals and other institutions are the main category of expenditure, accounting for about 55 percent of the total. This is unchanged from 1975, though the proportion had risen to 58 percent in the late 1970s. Professional services are the next major category of expenditures, accounting for just under 20 percent of the total (physicians for 15 percent and dentists for 5 percent). The major area of proportional increase has been in prescription drugs, where the share has risen from about 5 to 9 percent of total expenditures. The relative change in the main categories of expenditure is illustrated in Figure 2-2.

Figure 2-2: Selected Categories of Health Expenditures as Percentages of Total, Nova Scotia 1975 and 1985



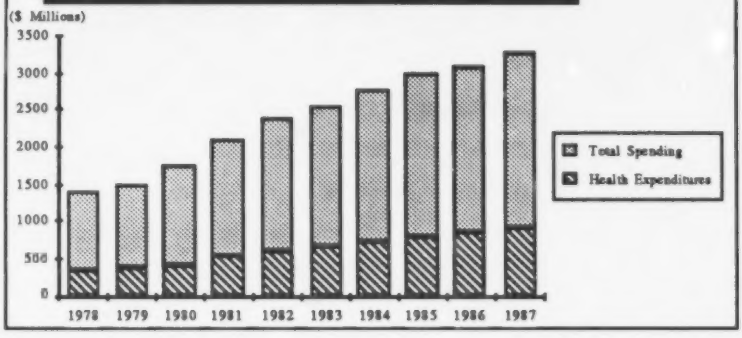
Source: Health and Welfare Canada, "National Health Expenditures in Canada, 1975-1985", Table 27.
Prepared by Gardner Pinfold Consulting Economists Limited.

2. Public Spending on Health Care

Public Expenditures and the Provincial Budget

While health care expenditures in Nova Scotia have stabilized over the past few years in terms of their share of GDP, the public sector component accounts for a steadily increasing share of the provincial budget.[2] This share rose from 24 percent in 1978 to 28 percent in 1987 (Figure 2-3). This relative growth is a reflection of several factors including a provincial policy committed to comprehensive health care, a decline in federal contributions to health programs (they dropped by about five percentage points between 1980 and 1985), and weak economic performance leading to relatively slow growth in the overall size of the budget. Figure 2-4 shows the annual percentage changes (adjusted for inflation) in health care and total government spending, 1978-1986. Note that in all years but one (1979), the percentage increase in health care spending exceeded that of total spending.

Figure 2-3: Nova Scotia Public Expenditures on Health Care and Total Provincial Current Account Expenditures, 1978 to 1987



Source: Estimates of the Government of Nova Scotia, various years.
Prepared by Gardner Pinfold Consulting Economists Limited.

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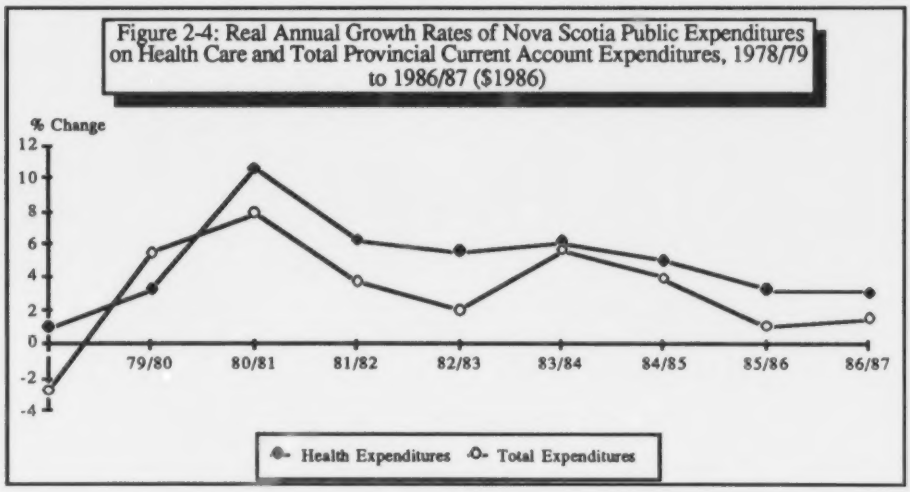
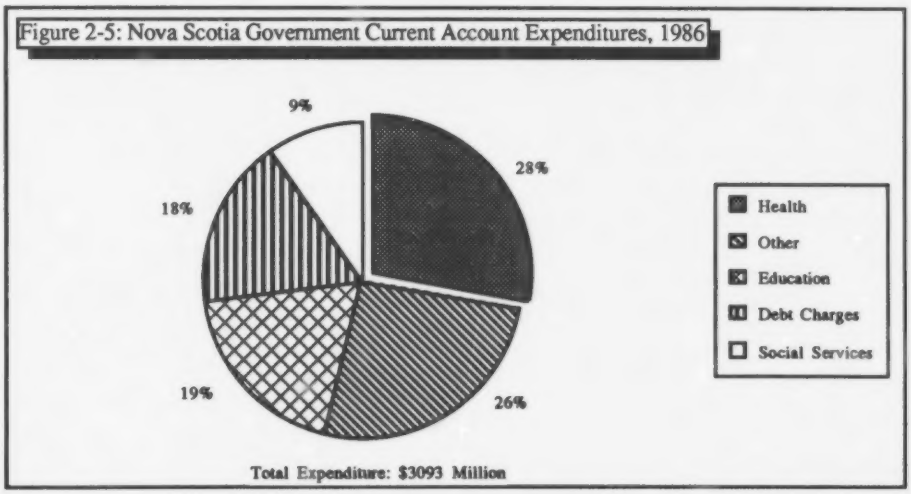
2 There are differences between the expenditure data reported by Health and Welfare Canada (1987) and the Nova Scotia Department of Health which are not easily reconcilable. For example, public sector spending in 1985 is reported to be $947 million by the former and $814 million by the latter. The major source of the difference (about $50 million) lies in how hospital expenditures are reported. Health and Welfare reports gross expenditures, while the Government of Nova Scotia in its budget estimates reports hospital expenditures *net* of hospital revenues (such revenues are earned from cafeteria sales, fees for parking, ambulance fees, etc.). Other reasons for a difference include the use of the calendar year by Health and Welfare and the fiscal year by the Department of Health, definitional differences (the Department of Health excludes some programs captured by Health and Welfare), and lags in reporting. We make no attempt to resolve these differences, since this would pose considerable difficulty and result in only marginal changes in the findings of this report. Following the terms of reference for this report, the analysis of the impact of health care expenditures is based on actual provincial expenditures (as reported in the Budget Estimates of the Government of Nova Scotia, 1988/89).



Source: Estimates of the Government of Nova Scotia, various years.
Prepared by Gardner Pinfold Consulting Economists Limited.

In 1986 (the latest year for which actual expenditure data are available), the Nova Scotia government spent close to $900 million on personal health care, most of this through programs funded by the Department of Health and Fitness (some programs funded by other departments fall within the general category of health care). At 28 percent of the total, health care is the largest area of spending (Figure 2-5). The other major components of the budget are Education (19 percent), Debt Charges (18 percent), and Social Services (9 percent. The remaining 26 percent is distributed over all other departments and services, with Assistance to Universities the next largest at about 6 percent of the total.

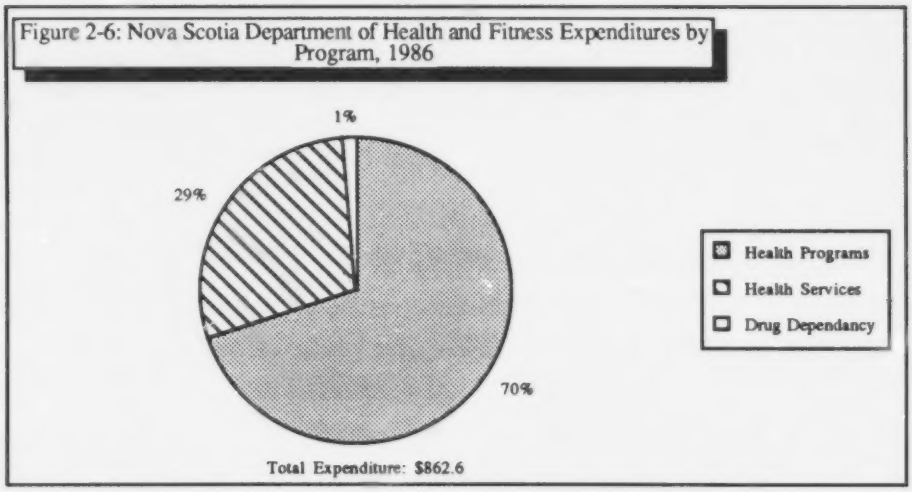


Source: Estimates of the Government of Nova Scotia, 1988/89, Pg. VII.
Prepared by Gardner Pinfold Consulting Economists Limited.

This study is primarily concerned with the economic impact of the approximately 75 percent of total health care expenditures made by the public sector. More specifically, the focus is on expenditures made by the Department of Health and Fitness. These divide into two categories, current account expenditures for on-going personal health care programs, and capital account expenditures for buildings and equipment. To facilitate the analysis of economic impacts in the next chapter, a distinction between current and capital account spending is maintained throughout the report.

Current Account Expenditures on Personal Health Care Programs

Spending under the Nova Scotia Department of Health budget falls into three program categories: Health Programs, Health Services and Insurance, and Drug Dependency. Health Programs accounts for 70 percent of the budget, with expenditures of $605.6 million in 1986. Health Services expenditures were $250.9 million and accounted for 29 percent of the budget, while Drug Dependency expenditures were $6 million and accounted for about one percent (Figure 2-6).

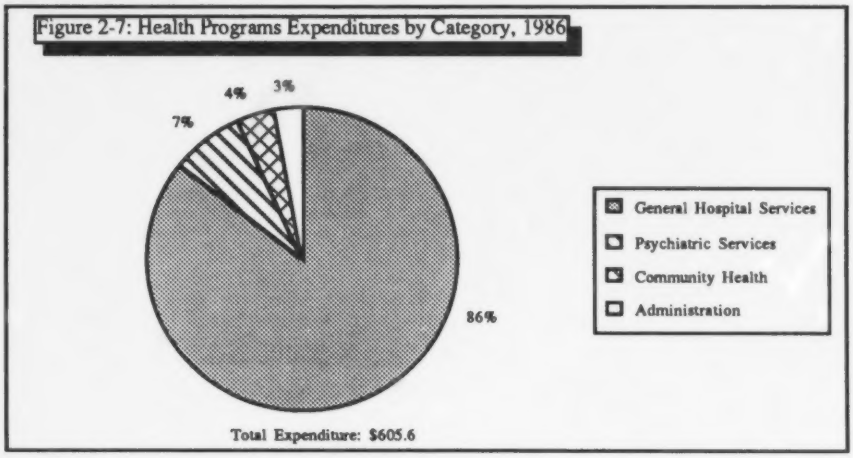


Source: Estimates for the Government of Nova Scotia, 1988/89.
Prepared by Gardner Pinfold Consulting Economists Limited.

Health Programs

Within the Health Programs, General Hospital Services is the major area of expenditure ($520.7 million), accounting for 86 percent of the program total. Psychiatric Hospital Services spending was $42.9 million, or seven percent of the program total.

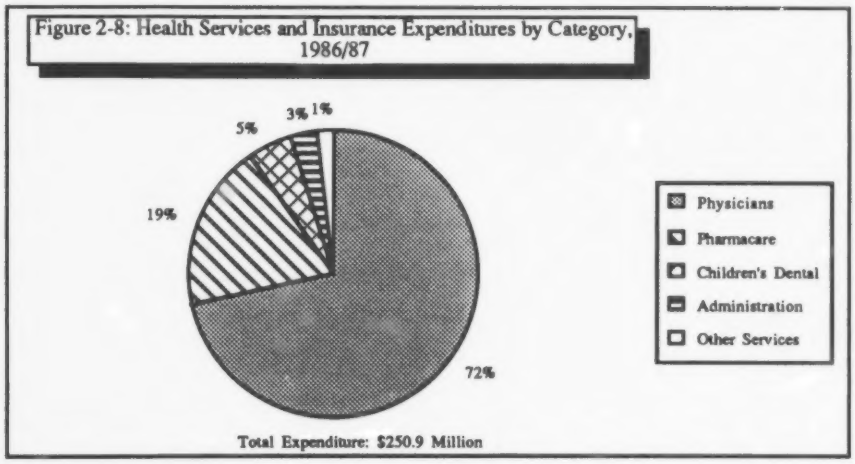
Community Health and Administration accounted for four and three percent, respectively. A breakdown of expenditures is provided in Figure 2-7.



Source: Estimates for the Government of Nova Scotia, 1988/89.
Prepared by Gardner Pinfold Consulting Economists Limited.

Health Services and Insurance

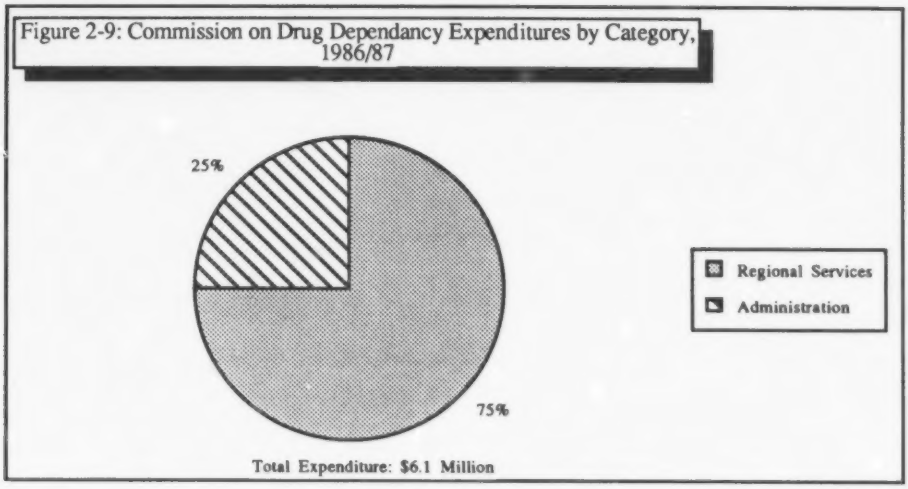
Payments to physicians (gross fees) in 1986 were $179.5 million, or about 72 percent of the program total. Pharmacare expenditures at $47.5 million (19 percent) followed in importance, with children's dental next at $12 million (5 percent). Other services amounted to $4.3 million (just over one percent), while administration came to $7.6 million (3 percent). A breakdown of expenditures is provided in Figure 2-8.



Source: Estimates of the Government of Nova Scotia, 1988/89.
Prepared by Gardner Pinfold Consulting Economists Limited.

Drug Dependency

Regional Services is the main element of the Commission on Drug Dependency, accounting for $4.6 million, or 75 percent of the program total. The remaining 25 percent is accounted for by administration (Figure 2-9).



Source: Estimates of the Government of Nova Scotia, 1988/89.
Prepared by Gardner Pinfold Consulting Economists Limited.

Capital Account Expenditures on Buildings and Equipment

Annual capital expenditures over the 1978-1987 period ranged from $2.2 million in 1978 to $64.7 million in 1987 (Table 2-3). Such a wide variation in expenditures makes it difficult to conduct a meaningful analysis of economic impact, when a single year's expenditures is required to conduct the analysis. To resolve this problem, expenditures over the decade are expressed in constant dollar terms (using 1986 as the base year in order to maintain consistency with the analysis of the economic impact of personal health care expenditures); the average for the period is then calculated and used as the basis for the analysis. Average annual capital spending using this approach was $17.7 million.

Table 2-3
Nova Scotia Department of Health and Fitness
Annual Capital Expenditures on Hospitals and Equipment,
1978/79 to 1987/88
($000s)

Fiscal Year	Capital Expenditures	GDP Deflator	Real Capital Expenditures ($1986)
1978	2,246	0.597	3,762
1979	4,520	0.657	6,879
1980	16,512	0.726	22,744
1981	5,089	0.805	6,322
1982	12,357	0.875	14,122
1983	39,688	0.919	43,186
1984	4,516	0.948	4,763
1985	8,091	0.975	8,299
1986	4,803	1.000	4,803
1987	64,734	1.043	62,065
Average	**16,255**		**17,694**

Source: Department of Health and Fitness, special tabulation, 1989.

3. Summary and Conclusions

One of the central issues confronting governments in Canada over the past two decades has been rising health care costs. The basic issue may be expressed in the form of the following question: How fast have health care costs been rising and are they threatening government's ability to pay? The data indicate that the period of rapidly rising costs ended in the early 1980s. Since then, costs as a proportion of Nova Scotia's GDP have stabilized at about 11 percent. The Canadian average is 8.6 percent. Nova Scotia per capita health expenditures are lower than the Canadian average. The relatively higher proportion of GDP accounted for by health care in Nova Scotia is due, not to higher costs, but to weaker economic performance. In other words, the problem (if there is one), would appear to be with slow economic growth, not rising health costs.

While costs have stabilized with respect to GDP, they are occupying an increasing share of the provincial budget, going from 24 to 28 percent of total expenditures between 1978 and 1987. Whether this is excessive is impossible to say, since there is no standard against which to compare. The critical question is whether government's ability to pay is threatened. That the province is running a deficit on current account suggests there are difficulties, at least in the near term. But these difficulties apply to all aspects of the public

sector, not just to health care. Were health costs increasing more rapidly than GDP, there might be cause for concern. But they are not. Government's inability to match revenues and expenditures is a general one. In other words, it could be argued not only that we have too many doctors and hospital beds, but there are too many teachers, highway workers, civil servants, and so on.

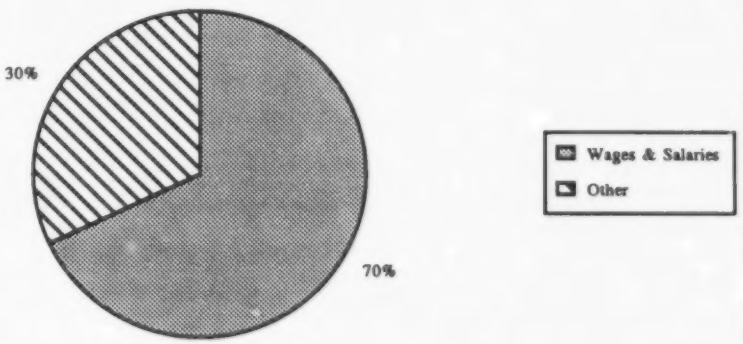
CHAPTER THREE
ECONOMIC IMPACT

1. Employment and Income Impact in a Provincial Context

Employment and Income Arising from Current Account Expenditures

Public spending (current account) on health care in Nova Scotia in fiscal 1986 generated the equivalent of an estimated 19,055 full-time direct jobs in the health professions and in the administration of health programs.[3] This number has remained fairly stable over the past few years. The direct personal income arising from these jobs is estimated to be $502 million. This represents about 70 percent of total public health care expenditures (Figure 3-1). The remaining one-third of spending is primarily for goods and services required to run hospitals, for drugs under the pharmacare plan, and for physicians' overhead expenses. A breakdown of expenditures by program according to wages and salaries and other expenditures is provided in Table 3-1.

Figure 3-1: Distribution of Health Care Expenditures, 1986-87



Source: Nova Scotia Medical Services Insurance Annual Statistical Tables, 1987; Department of Health and Fitness special tabulation; and, Department of Finance, Estimates of the Government of Nova Scotia, 1988/89.

Prepared by Gardner Pinfold Consulting Economists Limited.

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3 Many health professionals work on a part-time basis (e.g., nurses) or receive only part of their income from public sources (e.g., dentists, pharmacists and optometrists). In order to permit an assessment of the relative importance of health sector employment to be made, all employment data are converted to a full-time equivalent (FTE) basis.

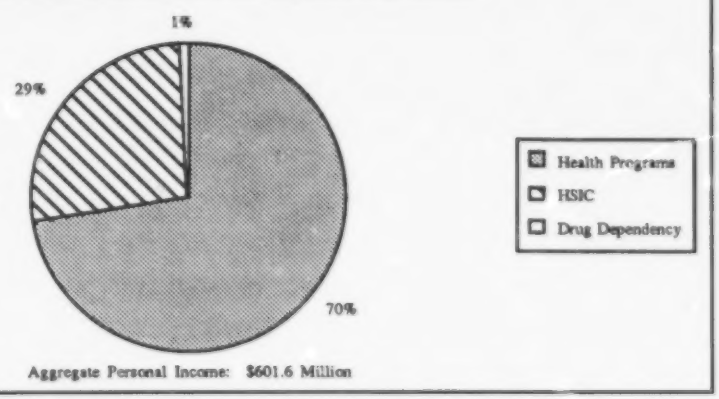
Table 3-1
Total Health Care Spending in Nova Scotia
by Program and Spending Component, 1986-87
($'000)

Category	Wages and Salaries	Other	Total
Health Programs	423,343	182,228	605,571
Health Service Insurance Commission	173,451	77,506	250,957
Drug Dependency	4,773	1,305	6,078
Total	601,567	261,039	862,606

Source: Nova Scotia Medical Services Insurance Annual Statistical Tables, 1987; Department of Health and Fitness, special tabulation; and, Estimates of the Government of Nova Scotia for the fiscal year, 1988/89.

The distribution of income and employment across programs is roughly in proportion to expenditures by program. Health Programs accounts for 70 percent of the $602 million of personal income, and Health Services and Drug Dependency for 29 and 1 percent, respectively (Figure 3-2). About 77 percent of the 19,055 FTEs of health care employment is accounted for by Health Programs, while Health Services and Drug Dependency account for 22 and 1 percent, respectively (Figure 3-3). The fact that Health Services' share of income is greater than its share of employment is explained primarily by the higher average incomes earned by physicians.

Figure 3-2: Aggregate Personal Income by Program, 1986-87



Source: Nova Scotia Medical Services Insurance Annual Statistical Tables, 1987; Department of Health and Fitness, special tabulation; and, Department of Finance, Estimates of the Government of Nova Scotia, 1988/89.

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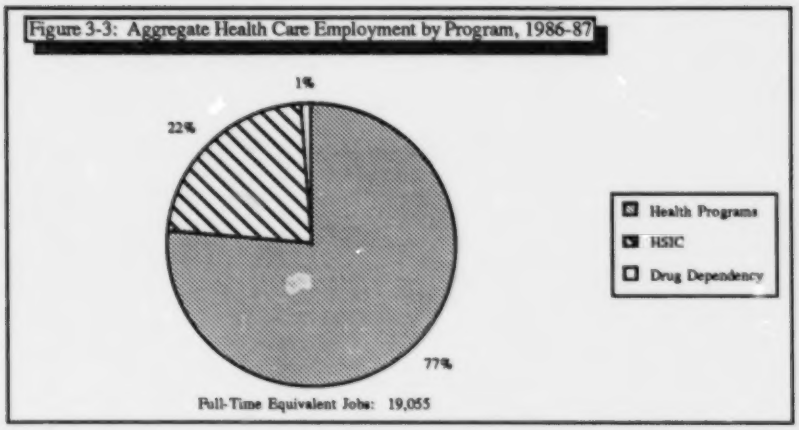

Source: Nova Scotia Medical Services Insurance Annual Statistical Tables, 1987; Department of Health and Fitness, special tabulation; and, Department of Finance, Estimates of the Government of Nova Scotia, 1988/89.

Prepared by Gardner Pinfold Consulting Economists Limited.

The employment and income arising from the delivery of health care programs represent a substantial proportion of the corresponding provincial totals for employment and income. In 1986, total employment (expressed in FTEs) in Nova Scotia was 341,000 (excluding defence). Publicly-funded health care accounted for just over 5 percent.[4] On the face of it, this may seem a relatively low percentage. But to put this into perspective, it is instructive to note that health care employment exceeded by a substantial margin employment in each of the primary sectors: agriculture, forestry, mining and fishing (Table 3-2).

Total income from employment in Nova Scotia in 1986 was $6,521 million. Publicly-funded health care accounted for just over 9 percent. The health care share of total income exceeds its share of total employment because average health care incomes are higher than the provincial average. Average income in the health professions is estimated to have been $31,570 in 1986, compared with an average of $19,125 for the province as a whole (Table 3-3).

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4 It is important to re-emphasize that the comparison here involves only the publicly-funded aspects of health care under the budget of the Department of Health and Fitness. Though firm figures have not been developed, we would estimate that total employment in health care (privately and publicly funded) would be in the range of 22,000 (or about 6.5 percent of total provincial employment). Among those falling outside the publicly-funded aspect in whole or in part are pharmacists, dentists, optometrists and their support staffs, as well as that proportion of employment in general and psychiatric hospitals covered by hospital revenues.

Table 3-2
Nova Scotia Employment by Sector, 1986

Sector	Number of Employed	% of Total
Agriculture	8,000	2.3
Forestry	4,000	1.2
Fishing	7,000	2.1
Mining	6,000	1.8
Health care	19,055	5.6
All Other	296,945	87.1
Total	341,000	100.0

Note: Number employed in all sectors is expressed in full-time equivalent jobs.

Source: Statistics Canada, Labour Force Survey, and Table 3-3, this report.

Table 3-3
Total and Average Employment and Income by Health Care Program, 1986-87

Health Care Programs by Category	Total Income ($'000)	Total Income % of Total	Total Employment FTE (1)	Total Employment % of Total	Average Income
Health Programs					
Admin. and Finance	1,723	0.3	53	0.3	$32,819
Hospital Services	419,215	71.6	14,174	74.4	$29,576
Community health	1,451	0.2	436	2.3	$33,279
Information/Registration	954	0.2	45	0.2	$21,200
Health Services & Ins. Com.					
Physicians	126,677	21.1	1,715	9	$73,864
Physicians Staff(2)	25,725	4.3	1,715	9	$15,000
All Other(3)	21,049	4.3	731	3.8	
Drug Dependency	4,773	0.8	186	1	$25,661
Total Health Care	601,567	100	19,055	100	$31,570
Province	6,521,000		341,000		$19,125

Note: (1) Employment is measured on a full-time equivalent (FTE) basis.
(2) In the absence of actual data we assume a one-to-one ratio between physicians and staff.
(3) "All Other" includes MMC administration and that part of the income and employment of dentists, pharmacists, optometrists, etc. and their staff covered by the HSIC. Given the nature of this category no meaningful figure for average income can be derived.

Source: Nova Scotia Medical Services Insurance Annual Statistical Tables, 1987; Department of Health and Fitness, special tabulation; Department of Finance, Estimates of the Government of Nova Scotia for the fiscal year, 1988/89; and, Revenue Canada, Income Tax Returns, 1986.

There is a wide variation in incomes among health professionals, and physicians' incomes tend to distort the overall average. On average in 1986, doctors earned about $74,000 (this is net of overhead expenses).[5] Average earnings of those employed in hospitals (all occupations) was about $30,000. The averages of those in administration (in the Department of Health), Community Health and Drug Dependency ranged from about $25,000 to $33,000. These averages are arrived at by simply dividing total income in each category by the number of FTEs.

Employment and Income Arising from Capital Account Expenditures

Capital spending, and hence construction employment, vary widely from year to year; on average over the past ten years, the equivalent of 220 full-time direct jobs have been created annually.[6] In 1986, this represented .06 percent of total provincial employment. An estimated $6 million in personal income is generated by the construction employment. In 1986, this represented .09 percent of total income from employment in Nova Scotia.

2. Economic Impact in a Regional Context

In this section, the employment and income generated by health care expenditures are examined in a regional context. Estimates of employment and income generated at the regional level are developed using expenditure data obtained from the Department of Health and Fitness and from the administrators of the Health Services and Insurance Program, Maritime Medical Care Inc. To conduct this analysis, we use the five economic regions of the province as defined by Statistics Canada: Cape Breton, Northeastern Nova Scotia, Halifax County, Southwestern Nova Scotia, and the Annapolis Valley (Figure 3-4).

The number of hospitals, hospital beds and physicians by region is given in Table 3-4. In 1986, Halifax County had about 43 percent of the province's hospital beds, 55 percent of the physicians and 35 percent of the population.

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5 Overhead expenses are estimated to account for an average of 30 percent of physicians gross fees. See, the 1987 report by Health and Welfare Canada, "Physicians' Income by Specialty Study, 1984".

6 The employment and income estimates are based on the assumptions that 35 percent of construction costs are accounted for by labour and that the average income for construction trades is $28,000.

Figure 3-4: Economic Regions of Nova Scotia

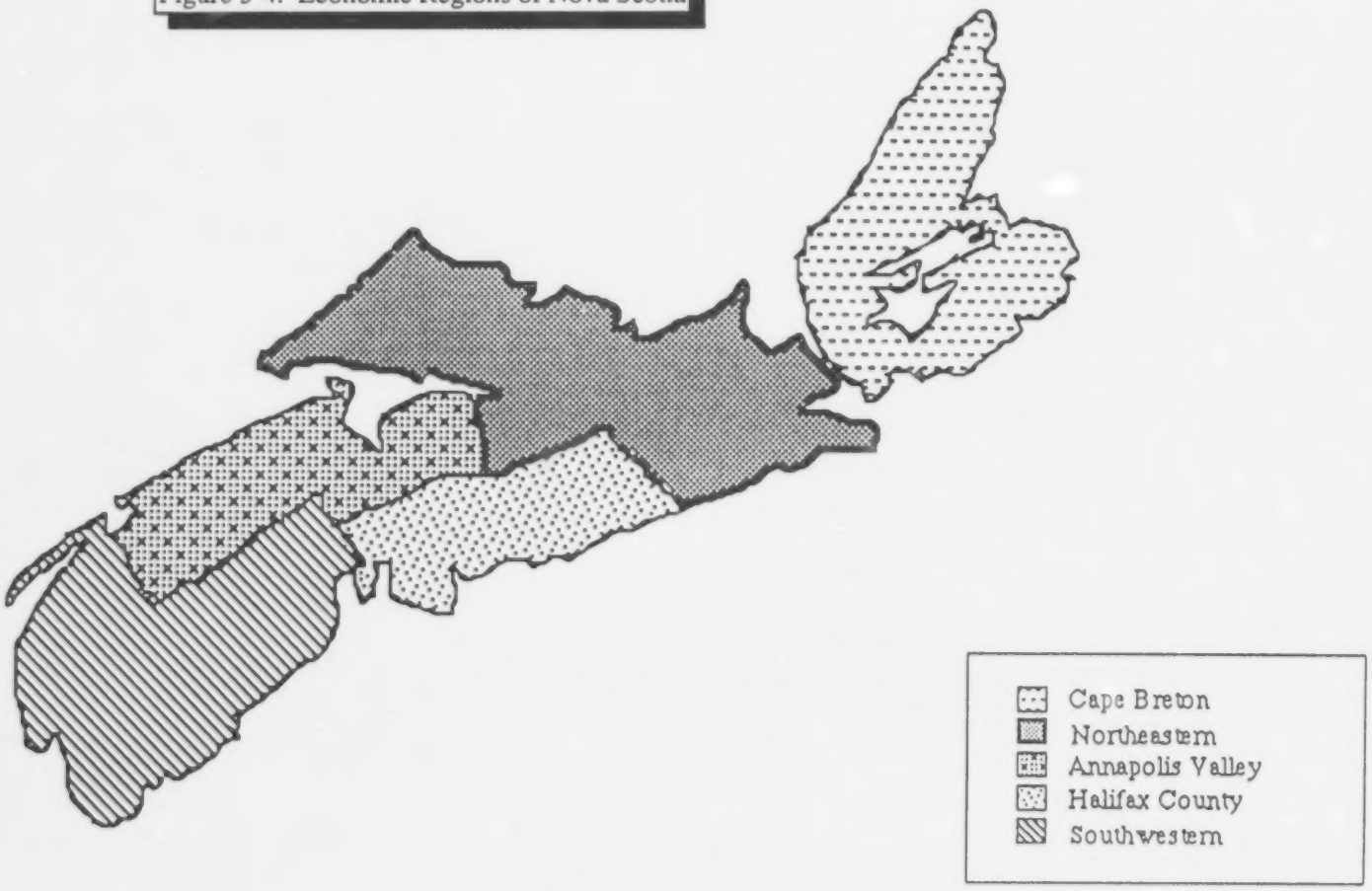


Table 3-4
Number of Hospitals and Physicians by Region, 1986

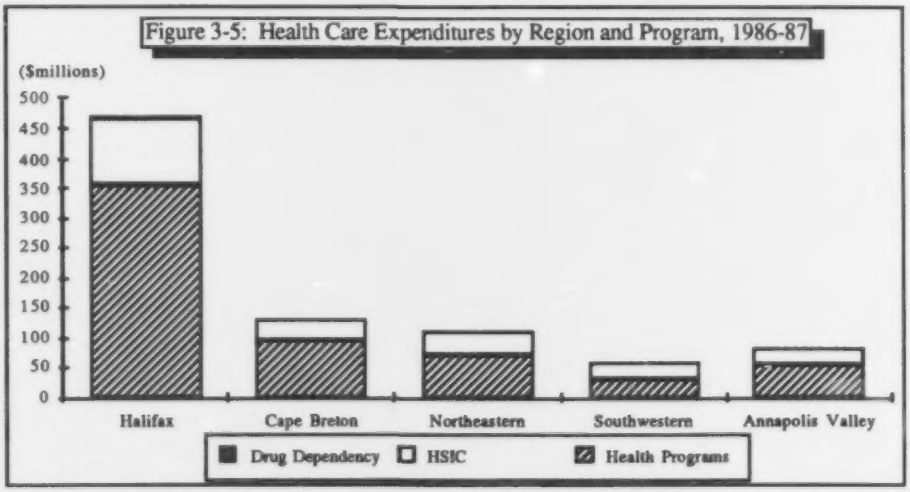
Region	Hospitals	Hospital Beds	Physicians	Population
Halifax County	11	2,217	940	306,418
Cape Breton	11	982	203	166,116
Northeastern	13	896	232	161,181
Southwestern	6	433	168	126,049
Annapolis Valley	6	614	172	113,412
Total	47	5,142	1,715	873,176

Source: Nova Scotia Medical Services Insurance Annual Statistical Tables, 1987; Department of Health and Fitness, Hospital Information Summary, 1987; and, Department of Industry, Trade and Technology, Regional Statistical Profile, 1988.

Expenditures by Region and Program

Health care expenditures are higher by a substantial margin in Halifax County than in the other economic regions of the province (Figure 3-5). Halifax accounts for about 55 percent of total spending, with Cape Breton a distant second at about 16 percent (Table 3-5). A detailed breakdown of expenditures by major component within programs is provided in Tables 3-6 and 3-7.

Figure 3-5: Health Care Expenditures by Region and Program, 1986-87



Source: Nova Scotia Medical Services Insurance Annual Statistical Tables, 1987; Department of Health and Fitness, special tabulation; and, Department of Finance, Estimates of the Government of Nova Scotia, 1988/89.

Prepared by Gardner Pinfold Consulting Economists Limited.

Table 3-5
Health Care Expenditures by Region and Program, 1986-87

Region	Health Programs ($'000)	%	HSIC ($'000)	%	Drug Dependency ($'000)	%	Total ($'000)	%
Halifax County	353,883	58	118,699	47	3,158	52	475,740	55
Cape Breton	93,298	15	39,691	16	1,459	24	134,448	16
Northeastern	71,001	12	38,086	15	1,090	18	110,176	13
Southwestern	30,423	5	29,168	12	196	3	59,787	7
Annapolis Valley	56,967	9	25,313	10	176	3	82,456	10
Total	605,571	100	250,957	100	6,079	100	862,607	100

Source: Nova Scotia Department of Health and Fitness, Explanation To Estimates 1986-87; Nova Scotia Department of Health and Fitness, special tabulation, 1989; and, Estimates of the Government of Nova Scotia for the fiscal year 1988/89.

Table 3-6
Health Program Expenditures by Component and Region, 1986-87

Region	General Hospital Services ($'000)	%	Community Health ($'000)	%	Administration ($'000)	%	Total ($'000)	%
Halifax County	320,562	57	15,158	64	18,162	100	353,882	58
Cape Breton	90,721	16	2,577	11	-	-	93,298	15
Northeastern	68,320	12	2,680	11	-	-	71,000	12
Southwestern	28,503	5	1,921	8	-	-	30,424	5
Annapolis Valley	55,453	10	1,514	6	-	-	56,967	9
Total	563,559	100	23,850	100	18,162	100	605,571	100

Note: The Administration component includes spending on the following: Finance, Information Systems and Research, and Registration Services

Source: Nova Scotia Department of Health and Fitness, Explanation To Estimates 1986-87; Department of Health and Fitness, special tabulation, 1989; and, Estimates of the Government of Nova Scotia for the fiscal year 1988/89.

The distribution of expenditures reflects in part the population distribution, but the disproportionate Halifax County share also reflects the role the city of Halifax plays as a regional medical treatment, training and research centre, and as the centre of health care administration for the province. This is particularly evident from the regional distribution of Health Programs expenditures, of which Halifax accounts for 58 percent (Table 3-6). The regional distribution of Health Services and Insurance expenditures conforms closely

to population distribution (Table 3-7), though for the reasons given above, Halifax accounts for a disproportionately high share.

Table 3-7
Health Services and Insurance Expenditures by Component and Region, 1986-87

Region	Physicians ($'000)	%	Pharmacare ($'000)	%	Dental ($'000)	%	Other ($'000)	%	Total ($'000)	%
Halifax County	90,625	50	13,212	28	4,427	37	10,435	87	118,699	47
Cape Breton	27,650	15	8,753	18	2,579	21	709	6	39,691	16
Northeastern	25,524	14	10,002	21	2,182	18	378	3	38,086	15
Southwestern	18,671	10	8,803	19	1,443	12	251	2	29,168	12
Annapolis Valley	17,037	9	6,701	14	1,379	11	194	2	25,311	10
Total	179,507100		47,471	100	12,010	100	11,967	100	250,955	100

Source: Nova Scotia Medical Services Annual Statistical Tables, 1986-87; and, Estimates of the Government of Nova Scotia for the fiscal year 1988/89.

Employment by Program and Region

The regional distribution of health care employment follows closely the distribution of expenditures. Some 10,700 FTEs of employment are generated in Halifax County, accounting for over 56 percent of total health care employment (Table 3-8). Cape Breton is next with just under 3,000 FTEs, or 15 percent of the total. The other regions account for between 6 and 12 percent. Employment is greatest in health programs (77 percent of total employment), with the Halifax share of the program total standing at just under 57 percent. Halifax also leads in HSIC employment, with 2,331 of 4,161 FTEs (56 percent).

Table 3-8
Health Care Employment by Region and Program, 1986-87

Region	Health Programs	HSIC	Drug Dependency	Total	% of Total
Halifax County	8,340	2,331	30	10,701	56.2
Cape Breton	2,393	495	48	2,936	15.4
Northeastern	1,801	551	37	2,388	12.5
Southwestern	738	386	71	1,195	6.3
Annapolis Valley	1,436	398	-	1,834	9.6
Total	14,708	4,161	186	19,055	100

Source: Nova Scotia Medical Services Annual Statistical Tables, 1987; and, Department of Health and Fitness, special tabulation.

Income by Program and Region

Of the estimated $602 million in personal income generated by public expenditure in the health care sector, about $316 million, or 53 percent, is earned in Halifax County (Table 3-9). Cape Breton is next, with just under $100 million, or about 17 percent of total income. The other regions account for between 7 and 14 percent. It is interesting to note that the percentage share of total income accounted for by Halifax County is lower than its share of employment (53 vs. 56 percent). This is accounted for primarily by differences within HSIC, where Halifax has 56 percent of total employment, but only 48 percent of total income (implying that average incomes are lower). The explanation for this apparent anomaly is fairly simple: there are more physicians per capita in Halifax than in the rest of the province.[7] Under these circumstances, unless the Halifax population were less healthy than the population in the province as a whole, one would expect physicians' incomes to be *on average* lower.[8]

Table 3-9
Health Care Income by Region and Program, 1986-87 ($'000)

Region	Health Programs	HSIC	Drug Dependency	Total	% of Total
Halifax County	231,402	84,017	900	316,319	53.0
Cape Breton	71,456	26,988	1,197	99,641	17.0
Northeastern	54,476	26,046	922	81,444	14.0
Southwestern	23,015	18,727	1,781	43,523	7.0
Annapolis Valley	42,994	17,645	-	60,639	10.0
Total	423,343	173,424	3,019	601,567	100.0

Source: Department of Health and Fitness, special tabulation, 1989; and, Nova Scotia Medical Services Annual Statistical Tables, 1986.

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7 Halifax County has 55 percent of the total physicians (and 45 percent of the total general practitioners) in Nova Scotia, and 35 percent of the insured population (see Table 3-4). Many general practitioners in Halifax work on a part-time basis.

8 Expenditures per insured person in Halifax County are below the provincial average in the case of general practitioners and higher on average in the case of specialists (presumably because specialists are more accessible in Halifax). Overall, expenditures per insured person in Halifax County are about 7 percent higher than the provincial average (see Nova Scotia Medical Insurance Annual Statistical Tables, 1986-87, Table 5.0). This in part explains why *aggregate* income is proportionately higher than the insured population (48 percent vs. 35 percent). The main reason for this difference, though, is that Halifax is a referral centre for the rest of the province. As a result, a disproportionate share of HSIC expenditures are made, and income is earned, there.

Assessment of Regional Economic Impacts

Cape Breton Region

The Cape Breton Region is comprised of four counties, Cape Breton, Inverness, Richmond, and Victoria. The population of the region in 1986 was 166,116, or approximately 19 percent of the total provincial population. Average income per FTE in the region in 1986 is estimated to have been about $18,500, compared with the provincial average of $19,125. The unemployment rate for the region in 1986 was estimated at 22.7 percent, significantly higher than the provincial rate of 13.4 percent. The participation rate (the percentage of those in the labour force working or looking for work) was 55.1 percent, well below the provincial rate of 59.3 percent. Summary statistics for each of the regions is contained in Table 3-10.

Table 3-10
Regional Labour Force Statistics

Region	Unemployment Rate	Participation Rate	Population		Average Income
			Number	% of Total	
Halifax County	9.9	68.7	306,418	35.1	$21,208
Cape Breton	22.7	55.1	166,116	19.0	$18,506
Northeastern	15.5	53.3	161,181	18.5	$19,045
Southwestern	11.7	51.2	126,049	14.4	$15,578
Annapolis Valley	10.2	59.0	113,412	13.0	$16,711
Total	13.4	59.3	873,176	100.0	$19,125

Source: Revenue Canada, Income Tax Returns, 1986; and, Department of Industry, Trade and Technology, Nova Scotia Regional Profiles.

Health care clearly makes an important contribution to the Cape Breton economy. It accounts for between 5 and 6 percent of regional employment and just over 10 percent of regional income (Tables 3-11 and 3-12).

Table 3-11
Health Care Employment and Total Regional Employment, 1986-87

Region	Health Care	Total	Health Care as a % of Total
Halifax County	10,701	145,000	7.4
Cape Breton	2,906	52,000	5.6
Northeastern	2,389	55,000	4.3
Southwestern	1,195	45,000	2.7
Annapolis Valley	1,542	44,000	3.5
Total	19,055	341,000	5.6

Source: Nova Scotia Medical Services Annual Statistical Tables, 1987.

Table 3-12
Health Care Income as a Percent of Total Income by Region, 1986-87
($millions)

Region	Health Care	Total	Health Care as a % of Total
Halifax County	316.3	3,075.1	10.3%
Cape Breton	99.6	962.3	10.4%
Northeastern	81.4	1,047.5	7.8%
Southwestern	43.5	701.0	6.2%
Annapolis Valley	60.6	735.3	8.2%
Total	601.4	6,521.2	9.2%

Source: Revenue Canada, Income Tax Returns, 1986; and, Nova Scotia Medical Services Annual Statistical Tables, 1986/87.

Northeastern Region

The Northeastern Region is comprised of five counties, Antigonish, Colchester, Cumberland, Guysborough, and Pictou. The population of the region in 1986 was 161,181, or approximately 18 percent of the total provincial population. Average income per FTE in the region in 1986 is estimated to have been about $19,050, compared with the provincial average of $19,125. The unemployment rate for the region in 1986 was estimated at 15.5 percent, compared with the provincial rate of 13.4 percent. The

participation rate for the region in this same year was 53.3 percent, well below the provincial rate of 59.3 percent (Table 3-10).

Health care clearly makes an important contribution to the economy of the Northeastern Region. It accounts for between 4 and 5 percent of regional employment and between 7 and 8 percent of regional income (Tables 3-11 and 3-12).

Annapolis Valley

The Annapolis Valley Region is comprised of three counties, Annapolis, Kings, and Hants. The population of the region in 1986 was 113,412, or approximately 13 percent of the provincial population. Average income per FTE in the region in 1986 is estimated to have been about $16,700, compared with the provincial average of $19,125. The unemployment rate for the region in 1986 was 10.2 percent, well below the provincial rate of 13.4 percent. At 59.0 percent, the participation rate was about the same as the provincial average (Table 3-10).

The contribution of health care to the economy of the Annapolis Valley is reflected primarily in income. It accounts for between 3 and 4 percent of regional employment and about 8 percent of regional income (Tables 3-11 and 3-12).

Southwestern Region

The Southwestern Region is comprised of five counties, Digby, Lunenburg, Queens, Shelburne, and Yarmouth. The population of the region in 1986 was 126,049, or approximately 14 percent of the total provincial population. Average income of the region in 1985 was about $15,580 per FTE, well below the provincial average of $19,125. The unemployment rate for the region in 1986 was 11.7 percent, slightly lower than the provincial rate of 13.4 percent. The participation rate was 51.2 percent, significantly lower than the provincial rate of 59.3 percent (Table 3-10).

The contribution of health care to the economy of the Southwestern Region is reflected primarily in income. It accounts for between 2 and 3 percent of regional employment and about 6 percent of regional income (Tables 3-11 and 3-12).

Halifax County

The population of the Halifax County in 1986 was 306,418, or approximately 35 percent of the provincial total. Roughly 78 percent of the region's population resides in

urban areas. The average income per FTE in 1985 was about $21,200, about 10 percent above the provincial average of $19,125. The unemployment rate for the region in 1986 was 9.9 percent, significantly lower than the provincial rate of 13.4 percent. The participation rate was 68.7 percent, substantially higher than the provincial average of 59.3 percent (Table 3-10).

Health care clearly makes an important contribution to the economy of Halifax County. It accounts for between 7 and 8 percent of regional employment and for 10 percent of regional income (Tables 3-11 and 3-12).

3. Expenditures on Goods and Services

Of the $863 million in public expenditures on health care in 1986, about $602 million was spent on wages and salaries and $261 million on goods and services (see Table 3-1, above). About two-thirds of the goods and services expenditures were made under Health Programs, and these mainly by hospitals. Most of the remaining one-third is represented by overhead costs incurred by physicians and others in private practice funded under the HSIC. These costs are represented mainly by office expenses (e.g., rents, utilities and supplies) and include little in the way of manufactured items. Our interest here is with goods and services purchased by the hospital sector since overall expenditures are comprised to a large extent by manufactured items.

Recurrent hospital expenditures are in the range of $200 million in Nova Scotia.[9] Less than 25 percent of these expenditures consists of items which were produced at least in part in Nova Scotia, with the remaining 75 percent imported to the province. Of the expenditures on goods and services produced at least in part in Nova Scotia, over half is accounted for by fuel oil which receives a limited degree of processing here. At most, then, only about 10 percent of expenditures can be said to have any meaningful Nova Scotia content. These fall into the following categories:

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9 This analysis is based on information obtained by the consultant from hospital officials responsible for purchasing, selected suppliers, officials at the Nova Scotia Government Services Pharmaceutical Purchasing Program, and officials at the Nova Scotia Association of Health Organizations. It is also based on an analysis of hospital expenditures carried out by the Nova Scotia Department of Industry, Trade and Technology in 1987. The analysis was conducted by surveying selected hospitals to determine the extent of local purchasing. The report was not completed. (Pers. comm. Mr. Terry Vey)

Goods	Services
• food and bakery products	• security
• milk and dairy products	• engineering
• furniture	• elevator repair
• linens and uniforms	• medical equipment repair
• blood reagents	• plumbing
• culture plates	
• printed materials	

Food, bakery and dairy products have the highest Nova Scotia value added, but account for less than 5 percent of expenditures. While the greater part of the service category of expenditure is paid to individuals resident in Nova Scotia, it should be noted that some of these services may result in incomes being paid directly to non-residents. For example, the repair and maintenance of some items of highly specialized medical equipment may be carried out by non-residents.

The 75 percent of expenditures are for goods and services imported from outside the province. This includes an extensive array of highly specialized medical products:

- pharmaceuticals
- medical equipment
- laboratory supplies
- chemicals
- sutures and dressings
- X-ray materials

Insofar as Nova Scotia residents are engaged in the importation and distribution within province of such items, then these expenditures do generate some provincial employment and income (such impacts would be captured as indirect effects in the analysis of overall economic impacts in Section 4, below). About half the expenditure on imported products falls into this category. (This excludes those goods and services discussed above which are produced at least in part in province.) The remainder is directly imported into Nova Scotia.

The purchasing function is carried out by several organizations. Pharmaceutical purchases for all hospitals are carried out by the Nova Scotia Government Services Pharmaceutical Purchasing Program. Much of the purchasing of equipment and supplies for regional hospitals (outside Halifax/Dartmouth) and some purchasing for some hospitals within the Halifax Dartmouth area, is conducted by the Nova Scotia Association of Health Organizations. In consequence, the purchasing for these hospitals is relatively centralized and local purchases are generally limited to fresh foods and the less specialized services.

The major hospitals within the Halifax/Dartmouth area conduct their purchasing either in consortia or individually.

To conclude, over three-quarters of hospital expenditures go towards items produced outside Nova Scotia. Another one-quarter goes towards items produced at least in part in the province, though the degree of involvement for most products is small. The items with the greatest provincial content would be food and dairy products and repair and maintenance services. In general, we would estimate that somewhere in the range of 5 percent of expenditures goes towards goods and services which have substantial Nova Scotia content.

In general, expenditures on goods and services represent an important potential source of provincial employment and income. At present, only a small part of that potential is being realized. Clearly, many items are of a specialized nature and would require long production runs and extensive markets to make local production feasible. Other items, though, may lend themselves to local manufacture to serve Nova Scotia hospitals and the broader regional market in the Atlantic Provinces. Further work is required to determine the potential.

4. Overall Economic Impact of Health Care Expenditures

The Input-Output Model

The overall economic impact of health care expenditures on the province of Nova Scotia is estimated using a modified version of the Statistics Canada Inter-regional Input-Output Model. The basic question traditionally asked in economic impact analysis is "What are the gross output and income flows associated with a specified economic change?". An I-O model provides the answer by tracing the transmission of a demand shock (in the form of an increase or decrease in expenditures) throughout the economic system. The impacts are usually expressed in terms of changes in industry output, aggregate income (GDP) and employment.

I-O models are most often used to assess the economic impacts arising from significant changes in economic activity, such as major industrial developments.[10] But

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10 There is the temptation when interpreting the results of a model simulation to assign them greater accuracy than is warranted. Model results should always be regarded as broadly indicative, and not

their use is equally valid in assessing the impacts of on-going economic activities, provided there is sufficient expenditure detail. Health care meets this basic requirement. It should be emphasized that it is not the impact of a *change* in health care expenditures that is being assessed, but the impact of the expenditures themselves. It is made to appear as a change to the model, since it is a change in expenditures that drives the model.

I-O analysis is based on the premise that there is an economic interdependence among industries in an economy. The accounting relationships contained in an I-O model describe the structure of demand and productive activity in a given year. Such models only represent a simplified account of economic interdependence, but then all models of economic behavior necessarily simplify reality. Because I-O models show economic relationships in a highly disaggregated form, they lend themselves to analyses which are not possible with aggregated models, particularly when examination of the interdependence of sectors of the economy is required.

While the input-output model is a useful tool for estimating economic impacts, some cautionary remarks about their limitations would be in order. As indicated above, all models of economic behaviour rely on simplifying assumptions:

- The I-O model assumes all impacts of a change in final demand are effective within whatever time period of analysis is chosen. In this sense the model is "static" and does not attempt to show the pattern of change over more than one time period.

- The proportion of each commodity required to produce a unit of output is the so-called the technical coefficient. The model assumes such technical coefficients are constant. In other words, the structure of production is "frozen". This is not unrealistic in the short run, but is unrealistic in the long run because it rules out technological change and productivity adjustments. This can be a problem in highly dynamic economies.

- The model assumes constant returns to scale. That is, as production goes up, all input requirements are assumed to go up in fixed proportions. This runs contrary to much of the theory underlying regional economics and industrial organization.

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definitive, of the magnitude of the impacts likely to occur. For a detailed discussion of the use of models in impact assessment see, Pinfold, Thomas. 1987. "An Evaluation of the Utility of Large-Scale Economic Models for Socio-Economic Impact Assessment" Environmental Studies Revolving Funds Report No. 067. Ottawa.

The last assumption can pose the most difficulty in interpreting the results of an impact assessment using an I-O model. It implies that I-O models are not supply-oriented. They omit any consideration of the pressures put on resources, production bottlenecks, or input restrictions. In other words, an I-O model will not identify any negative aspects associated with the impact of a major demand shock. The fixed price assumptions and lack of a dynamic time frame for analysis preclude any assessment of inflation impacts.

Public spending on health care in Nova Scotia is large relative to the size of the economy (about 7 percent of GDP for the public component only). For the reasons outlined in the previous paragraph, if an I-O model is run with a demand shock that is substantial relative to the economic structure and behaviour that forms the basis of the model, the results may not be all that meaningful.

The possibility that health care spending would overwhelm the model and lead to meaningless results was a concern at the outset of the study. This concern was dispelled once the data were analyzed and it became clear that only about 30 percent of direct spending (about $261 million) went towards goods and services (and the bulk of these were imported into the province). The inter-industry transactions triggered by this level and type of spending would lead to meaningful impact measures.

The balance of spending (about $602 million) goes towards wages and salaries (household income) and is entered into the model as final demand. In this respect the household sector is treated as if it were another industry. Thus, the impact results include the so-called induced or "multiplier" effects arising from successive rounds of spending of household income.

The Impact Results

The Statistics Canada I-O Model simulations provide information on GDP (value added), employment, government revenues and gross output by industry. Gross output is the market value of all goods and services produced, and yields information on the main sectors in Nova Scotia affected by health care spending. Separate results are reported for current account and capital account spending.

Current Account Expenditure Impacts

Direct expenditures in 1986 were $863 million. The total (direct, indirect and induced) impact of this spending results in about $1,320 million in GDP in Nova Scotia (Table 3-13). This reflects in large measure the direct personal income (including fringe benefits) earned by the more than 19,000 FTEs of direct employment created in the health sector, and also the induced incomes earned by those in occupations (mainly retail trade) who benefit from the spending of direct incomes. As we noted earlier, the indirect impacts from health care spending are small because such a high proportion of goods and services used in the health care sector are imported to the province.

The other main elements of GDP are returns to, and of, capital (net business income and depreciation) and sales taxes (Table 3-13). Table 3-13 also reports GDP for Canada as a whole. The $300 million or so over and above that generated in Nova Scotia originates in the supply of goods and services imported to the province to meet direct, indirect and induced demands (demand met by imports is commonly referred to as a "leakage" from the economy).

Table 3-13
Total Impact on GDP of Current Account
Health Care Expenditures, 1986
($ millions)

	Nova Scotia			Total Canada(1)
	Direct	Indirect and Induced	Total	
Net Indirect Taxes	9.0	47.8	56.8	77.5
Wages and Salaries	625.4	315.9	941.3	1,106.5
Other Labour Income(2)	39.4	20.6	60.0	72.9
Profits and Depreciation	53.9	208.4	262.3	377.6
Total	727.7	592.7	1,320.4	1,634.5

Notes: (1) Contributions to GDP in other parts of Canada arise from leakages of expenditures from Nova Scotia to the rest of Canada.
(2) Includes such sources as unemployment insurance and pension income.

Health care spending creates an estimated 36,400 FTEs of employment in Nova Scotia, 19,000 in direct jobs in the health care sector and 17,400 elsewhere in the economy

(Table 3-14). Most of the jobs elsewhere in the Nova Scotia economy fall into the induced category. The main sources of induced employment are in the retail trade, business and personal services, and manufacturing sectors.

Table 3-14
Total Impact on Employment of
Current Account Health Care Expenditures
(full-time equivalents)

	Nova Scotia	Total Canada (1)
Direct	19,055	19,055
Indirect and Induced	17,432	24,123
Total	36,487	43,178

Note: (1) Includes Nova Scotia employment plus employment elsewhere in Canada which is created in the supply of goods and services arising from direct, indirect and induced health care demands.

Total government revenues generated *in Nova Scotia* by income and sales taxes arising from these direct, indirect and induced impacts are estimated at $207 million (Table 3-15). Of this, about $94 million accrues to the provincial government in the form of sales and income taxes, and $113 million to the federal government mainly in the form of income tax. Thus, of the $863 million spent on health care by the provincial government in 1986, an estimated 24 percent was recovered in the form of tax revenue in Nova Scotia.

Table 3-15
Total Impact on Employment of
Current Account Health Care Expenditures
on Government Revenues, 1986
($ millions)

	Nova Scotia	Total Canada
Federal (income tax)	113.1	146.2
Provincial (income and sales tax)	94.3	122.5
Total	207.4	268.7

Notes: (1) Includes Nova Scotia tax revenues plus revenues collected elsewhere in Canada which are attributable to health care expenditures.
(2) The provincial revenue figure of $94.3 million includes both direct and indirect taxes. The figure of $56.8 million in Table 3-13 is for indirect taxes only.

These revenues may be compared with provincial and federal expenditures by referring to Table 2-2 in Chapter 2. Assuming the provincial and federal shares of Nova Scotia health expenditures for 1985 are valid for 1986, it follows that about 20 percent of the province's share of expenses would have been recovered in the form tax revenues attributable to these expenditures. Similarly, about 28 percent of the federal share of expenses would have been recovered through taxes attributable to these expenditures (Table 3-16).

Table 3-16
Tax Revenues Attributable to
Health Care Expenditures (1)
Nova Scotia and Canada, 1986
($ millions)

	Nova Scotia	Canada	Total
Tax Revenues (2)	94.3	113.1	207.4
Health Care Expenditures (3)	461.5	401.1	862.6
Revenues as % of Expenditures	20.4	28.2	24

Notes: (1) Refers to provincial government expenditures.
(2) Refers to revenues collected in Nova Scotia only. Excluded are federal tax revenues collected elsewhere in Canada that are attributable to expenditures on goods and services impacted to Nova Scotia. These revenues are estimated at $60 million. Including this would raise the overall recovery to 31 percent.
(3) The provincial and federal contributions to provincial health care expenditures for 1986 are based on the 1985 shares as given in Table 2-2 of this report. The provincial share was 53.5%, and the federal share was 46.5 percent.

An additional $60 million in taxes arises from incomes earned and expenditures made elsewhere in Canada. As noted, these incomes and expenditures are related to the supply of goods and services imported to Nova Scotia to meet direct, indirect and induced demands.

Capital Account Expenditure Impacts

Average annual capital expenditures, 1978/87, were $17.7 million ($1986). The total (direct, indirect and induced) impact of this spending results in about $16.0 million in GDP (as measured by value added). This reflects in large measure the personal income and profits earned in construction. (Table 3-17).

Table 3-17
Total Impact on GDP of Capital Account
Health Care Expenditures, 1986
($ millions)

	Nova Scotia			Total Canada (1)
	Direct	Indirect and Induced	Total	
Net Indirect Taxes	0.8	0.3	1.1	1.5
Wages and Salaries	4.8	5.1	9.9	13.8
Other Labour Income(2)	0.4	0.4	0.8	1.0
Profits and Depreciation	1.5	3.5	5.0	7.6
Total	7.5	9.3	16.8	23.9

Capital spending creates an estimated 458 FTEs of employment annually (on average), about 220 in direct jobs in the construction industry and 238 elsewhere in the economy (indirect and induced). The main sources of indirect and induced employment are in the retail trade, business and personal services, and manufacturing sectors (Table 3-18).

Table 3-18
Total Impact on Employment of
Capital Account Health Care Expenditures, 1986
(full-time equivalents)

	Nova Scotia	Total Canada
Direct	220	220
Indirect and Induced	238	404
Total	458	624

Total government revenues generated in Nova Scotia by income and sales taxes arising from these direct, indirect and induced impacts are estimated at $2.8 million (Table 3-19). Of this, about $1.3 million accrues to the provincial government and $1.5 to the federal government (the former is a mix of sales and income taxes, the latter mainly income tax). An additional $1.3 million in taxes arises from incomes earned elsewhere in Canada.

These incomes are generated in the supply of goods and services imported to Nova Scotia to meet direct, indirect and induced demands.

Table 3-19
Total Impact on Government Revenues
of Capital Account Health Care
Expenditures
($ millions)

	Nova Scotia	Total Canada
Federal (income tax)	1.5	2.2
Provincial (income and sales tax)	1.3	1.9
Total	2.8	4.1

5. Summary and Conclusions

The health care industry is a major source of employment and income in Nova Scotia. In 1986, the public spending on health care created the equivalent of an estimated 19,055 full-time jobs and $602 million in personal income in the province. To put these figures in perspective:

- health care represents about 5 percent of total employment in the province and accounts for about 9 percent of total income from employment:
- health care employment exceeds by a substantial margin employment in each of the primary sectors: forestry, fishing, mining and agriculture; and,
- incomes of health professionals in 1986 ranged from an average of $25,000 for those in administration, to an average of $74,000 for physicians, with an overall average of $31,570. Average income in Nova Scotia in general in 1986 was $19,125.

The regional distribution of health care services and expenditures is weighted heavily towards Halifax. This reflects the role the city plays as a regional medical treatment, training and research centre, and as the centre of health care administration. The Halifax region accounts for about 55 percent of annual expenditures, with Cape Breton

second at 16 percent. The regional distribution of employment and income follow closely the distribution of expenditures: Halifax accounts for 56 percent of employment and about 53 percent of income; Cape Breton follows at 15 and 17 percent, respectively.

The relative importance of health care as a source of employment and income varies widely by region. It is greatest in Halifax, where health care accounts for over 7 percent of employment and over 10 percent of income. In Cape Breton, it accounts for close to 6 percent of employment and over 10 percent of income. In the other regions of the province, health care accounts for between 2 and 5 percent of employment and between 6 and 8 percent of income.

The overall economic impact of health care expenditures is estimated using an input-output model of the Nova Scotia economy. The total direct spending of $863 million in 1986 generated $1,320 million in GDP. Over $725 million of this arose from direct activity in the health care sector, with the balance generated elsewhere in the economy through the multiplier effect.

Health care spending created the equivalent of an estimated 36,400 full-time jobs in the province, 19,000 directly in health care and 17,400 elsewhere in the economy. Most of the additional employment falls into the induced category, occurring in occupations which benefit from the spending of direct incomes. The indirect impacts from health care spending are small because such a high proportion of goods and services used in the health care sector are imported to the province.

Tax revenues attributable to health expenditures are substantial in relation to these expenditures. Total government revenues generated in Nova Scotia by income and sales taxes attributable to health expenditures in 1986 are estimated at $207 million, or 24 percent of expenditures. Of this, about $94 million accrued to the provincial government and $113 million to the federal government. Provincial tax revenues covered an estimated 20 percent of Nova Scotia's share (53.5 percent) of the $863 million spent, while federal revenues covered about 28 percent of the federal share (46.5 percent).

Physicians in Nova Scotia:
A Human Resource Management Strategy

A Preliminary Report to

The Nova Scotia Royal Commission on Health Care

by

The Nova Scotia Working Party on
Physician Manpower Planning

November 1989

Note: **This report was prepared as an advisory document to the Nova Scotia Royal Commission on Health Care and the contents do not necessarily reflect the views and opinions of the Department of Health and Fitness.**

PHYSICIANS IN NOVA SCOTIA:
A HUMAN RESOURCE MANAGEMENT STRATEGY

A Preliminary Report to
The Nova Scotia Royal Commission on Health Care

EXECUTIVE SUMMARY

The importance of the role of physicians in our health care system in both primary and specialty medical care, as well as their significant influence on the use of other health care resources, is well recognized. The rapid increase in overall health care costs, together with the economic downturn of the early 1980's, has compelled governments across the country to become increasingly committed to rationalizing the growth in physician numbers while endeavouring to ensure equity of access, efficiency of expenditure and the continued provision of high quality care.

Whereas twenty years ago governments were prompted by concerns of projected physician shortages, today, in light of limited fiscal resources, governments are disturbed at the prospects of a growing oversupply. The history of this turnaround in Canada's perceived requirements for physician manpower is instructive.

In 1964 the Royal Commission on Health Services (the Hall Commission) foresaw the need for more physicians as a consequence of introducing universal and comprehensive first-dollar medical care insurance programs in Canada. As a result of the Commission's recommendations, the number of graduates from Canadian medical schools increased 69 percent between 1968 and 1977. However, the Hall Commission overestimated the rate of growth of Canada's population and underestimated the rate of growth of physician numbers that would occur as a result of an extraordinary influx of immigrant physicians. Hall's target physician to population ratio of 1 to 650 for the year 1990 was reached a full ten years early.

As early as 1976, the National Physician Requirements Committee was intimating that Canada was close to achieving its optimum supply of physician manpower. By 1982 the Federal-Provincial Special Medical Manpower Committee (the Law Report) estimated that Canada would need to reduce its undergraduate medical school enrolments by at least 10 percent if growth in physician manpower was to be kept in line with requirements. In 1984 the Federal-Provincial Advisory Committee on Health Human Resources, after allowing for the aging of the population, physician retirements and the increasing number of female practitioners, projected that a 17 percent reduction would be

required if the supply and demand for physician manpower was to be in balance by the year 2000. A 1989 update of these projections suggests that Canada may have 66,000 physicians by that date, 15,000 more than the projected requirements. By 1985 Nova Scotia had already surpassed the national target physician to population ratio for the year 2000.

Despite perceptions of a growing oversupply of physician manpower that have persisted for almost a decade, the rate of growth in the supply of physicians throughout Canada has continued to outstrip the growth rate of the population by a factor of four. While it had been relatively easy to effect a national agreement to dramatically increase the supply of physicians in Canada in a time of need, it has proved exceedingly difficult to achieve a national consensus to reduce medical school undergraduate enrolments in a time of perceived surplus. Only Manitoba and Nova Scotia have implemented modest cutbacks in medical school enrolments, and these were introduced largely for financial and administrative reasons rather than as a response to overall physician manpower requirements.

Thus, while the impetus to reduce the rate of growth of Canada's overall physician manpower supply has continued to mount, Federal-Provincial attempts to establish a national consensus with regards to enrolment reductions in Canada's medical schools have remained unsuccessful. There are several reasons why governments have been reluctant to adopt these measures.

Given the free interprovincial migration of physicians which is tied to nationally recognized LMCC and Royal College specialty certification standards, the rate of growth of the physician to population ratio in any given province will remain primarily a function of the rate of growth of Canada's physician to population ration, and largely beyond the control of any province acting independently. As such, unilateral action to reduce training posts by any one province is often viewed as a no-win situation - the per capita number of medical education training opportunities are reduced for provincial residents while provincial manpower numbers continue to grow as the result of the unrestricted in-migration of physicians from other provinces. With respect to reaching a national consensus, it has remained difficult to develop an appropriate enrolment reduction formula that is sensitive to the needs of all jurisdictions.

The salability of nationally coordinated medical school cutbacks is further undermined by the fact that some geographic and specialty specific maldistribution problems still persist. Normal market forces do not appear to regulate the supply of physician services and, as such, provinces have had to continue to offer incentive schemes and to recruit foreign physicians to fill rural vacancies despite Canada's high physician growth

scenario.

This leads to the other driving force behind the growth in physician numbers, immigration. Only one-third of the 400 physician immigrants who are admitted to Canada each year are selected on the basis of provincial manpower needs. The remainder are admitted on the basis of Canada's current immigration policy, largely on compassionate grounds. These admissions are beyond the control of individual provinces. As such the burden for any cutbacks in immigrant numbers tends to fall on the 100 or so physicians who are admitted by the provinces each year to fill chronic vacancies. Thus, provinces have been somewhat reluctant to voluntarily reduce their intake of immigrant physicians because of their dependence on them as a convenient and readily accessible demand buffer. Again, no national agreement has been reached as to an appropriate reduction in the number of physician immigrants admitted to Canada each year.

The fundamental question that underlies all physician human resource planning activities at all levels of government still remains to be answered: "How many physicians do we really need?"

Determining requirements for physician manpower is a complex process. For the past fifteen years health manpower planners within governments, universities and professional associations throughout North America have been attempting to produce or commission answers to the question of physician requirements. The results of their investigations have not be encouraging. The principal thrust of the majority of these reviews has been towards refining and projecting supply-side data, computing cost implications of continued supply side growth and then suggesting ways and means of curtailing the net growth of physician numbers. Of late the more ambitious reviews have been focusing directly on methods to contain the costs of physician services.

Most demand-side estimates are based on current supply-side numbers adjusted to incorporate current geographical and intra-professional distribution disparities. The status quo approach (i.e. the assumption that current demand always equals current supply) taken year by year in the face of a continued strong growth in physician supply, has led by definition to a concomitant growth in physician requirements. Thus, the answer to the question regarding optimum physician manpower requirements remains moot.

There are many reasons why a definitive answer to this question has yet to be achieved. In order for manpower planning to be truly effective, it should be an integral part of an overall health care planning process. Such a process should identify health care needs in relation to carefully defined health status indicators, and, as a function of these defined

needs, establish health care delivery goals, priorities and strategies. Such a health resources planning backdrop would allow manpower planners to develop an effective system that could optimize cost-effective physician manpower production, utilization and deployment. Unfortunately, such a system does not exist.

While it is acknowledged that we are unable, as yet, to precisely define physician manpower requirements, can we not at least identify acceptable signs of surplus?

In the case of fee-for-service practice, which by design rewards productivity and provides for a high degree of clinical freedom, physician surplus is not definable in a finite sense. If appropriate levels of care were known and agreed upon, if diagnoses were certain and the range of treatable conditions limited, then surplus would exist when more services were available than were needed. In a competitive market, price would be driven down to the point where some physicians would leave practice, and markets would be cleared.

As none of the necessary conditions for surplus definition exist in the market for physician services, excess supply must be defined in relative terms. Even then, it is not a static condition, as recognizable morbidity and the range of possible interventions change both as a function of technology (e.g. organ transplants), and of cultural fashions (e.g. the ongoing evolution of psychiatric and geriatric care). Epidemiology alone cannot define surplus for reasons mentioned above. Surplus, in a relative sense, must be based on some criteria of sufficiency defined in comparative terms. Let us look at the evidence.

* Between 1976 and 1986, the number of active civilian physicians in Nova Scotia increased an average of 3.5% per year, seven times Nova Scotia's population growth rate over the same period.

* Between 1976 and 1986, Nova Scotia's physician to population ratio improved by 22 percent, compared with 18 percent for Canada as a whole.

* Between 1970-71 and 1987-88, the number of fee-for-service physicians in Nova Scotia grew by 79.3 percent. The number of full-time physicians grew 88 percent over the same period.

* In 1981-82, Nova Scotia, in terms of physician to population ratios regarding physicians who billed the system at least once during the year, ranked in 2nd and 3rd place for general practitioners and total physicians in Canada, respectively, and in first place for both categories by 1987-88.

* In 1987-88, Nova Scotia's active physician to population ratio for General Practitioners was 14 percent higher than the 10 Province figure. Nova Scotia's ratio for all physicians was 9 percent higher.

* Nova Scotia's health care expenditure as a percent of provincial gross domestic product was 11.2 percent, compared to 8.5 percent for Canada as a whole.

* In terms of per capita expenditure for physician services in Canada, Nova Scotia ranked in 6th place in 1974-75 rising to 3rd place in 1985-86. In 1985-86 Nova Scotia's expenditure was 20 percent higher than the Canadian median.

* In terms of total full-time equivalent physicians, Nova Scotia was almost 7 percent higher than the 10 province median in 1985-86. For surgical specialties, the figure was 22 percent higher than the Canadian median.

* With regard to physician services per 1,000 population in 1985-86, Nova Scotia ranked in first place nationally in terms of home/emergency visits, second place for all services excluding diagnostic and lab, and 3rd place in terms of consultations and anesthesia.

* With regard to percentage growth in physician services per 1000 population between 1980-81 and 1985-86, Nova Scotia was double the 10 province median in consultations and laboratory services, 44 percent higher in home/emergency visits, and 64 percent higher in minor surgery.

* Nova Scotia's Medical Services Insurance constant dollar expenditure per full-time equivalent in 1987-88 dollars has remained virtually constant at about $148,000 for the past 17 years.

* Between 1982-83 and 1986-87, the number of insured persons receiving no physician services declined by 16 percent, while the number of persons receiving 11 or more services increased by that same amount.

* MSI payments for physician services expenditure per insured person by county of residence exhibited only an 8.3 percent variability.

* Between 1982-83 and 1987-88, total services provided by General Practitioners in the Metro area grew at 2.2

times the non-metro rate. Major and initial consultations were 1.7 times the non-metro rate. Family psychotherapy services were up 174 percent, counselling up 206 percent and laboratory services up 170 percent (almost 3 times the non-urban rate) in the Metro area over the comparable period.

* Between 1975-76 and 1981-82, payments to General Practitioners in Halifax/Dartmouth decreased by 4.4 percent in constant 1987-88 dollars, but increased 37.3 percent between 1981-82 and 1987-88.

* The number of General Practitioner visits per 1000 insured grew 10.1 percent between 1975-76 and 1981-82, and doubled over the next six years to 20.5 percent between 1981-82 to 1987-88. Total consultations for General Practitioners were up 162 percent over the 12 year period.

* Payments to physicians increased from 18 percent of Nova Scotia's total health care budget in 1981 to 21 percent in 1987.

* The annual increase in utilization of physician services has increased from 2.4 percent in the late 1970's to 4.2 percent in the 1980's.

While the evidence may not be conclusive, it is indeed compelling.

Comparisons to national norms show that Nova Scotia exceeds the median for full-time equivalent physicians and ranks in first place in terms of relative head counts of General Practitioners and total physicians billing the system at least once during the year. Nova Scotia also exceeds the median for per capita expenditure, both before and after adjusting for inter-provincial differences in fee levels. By reference to national norms, Nova Scotia is clearly justified to declare a surplus in physician supply.

Critics contest, however, that a number of supply-side factors (female practitioners and aging physicians) will deplete Nova Scotia's growth in full-time equivalents, and certain demand-side considerations (general growth of population, aging of the population and technology) will increase our physician requirements in the future.

Female physicians represent 18.7 percent of Nova Scotia's physician workforce. While it is true that females work less than their male counterparts (about 81 percent of the male full-time equivalent in General Practice, and 92 percent in the

specialties) these differences may be merging over time. Overall, the impact of female practitioners on the growth of total full-time equivalent physicians in relation to head counts has been negligible. Similarly, although a high number of physicians head counts may be retiring from Surgery for example, their actual full-time equivalents are quite low and thus more easily replaceable.

With respect to the demand-side factors, it has been estimated that the measurable effects of new services (technology) have been responsible for annual increases in utilization of 0.54 percent per year during the last six years. About 0.65 percent is attributable to population growth and a further 0.43 increase in expenditures due to aging, for a grand total of 1.6 percent. As total utilization increases have averaged 4.2 percent annually, this leaves an annual average increase of 2.6 percent that is not explained by these factors.

Although physicians themselves have identified a surplus of General Practitioners in Halifax-Dartmouth almost a decade ago, fifty-five percent of all new General Practitioners established practices in Halifax County over the past 10 years. Despite the fact that General Practitioners in Halifax don't have hospital admitting privileges and that there is some substitution of General Practitioner services because of the availability of specialist services, the rapid growth in numbers of General Practitioners associated with increases of similar magnitude in General Practitioner utilization lends considerable support to the theory that physician supply may be the most important determinant of utilization of physician services.

In a classic demonstration of the proposition that health care expenditures are at least adequate but are distributed sub-optimally, there is evidence that the provincial population suffers age-sex standardized levels of morbidity and mortality that are below national norms, and that the discrepancy in health status is growing, despite our greater utilization of physician services.

In these circumstances, it may not be necessary to search further for signs of surplus. What evidence is there to show that the continued growth in the utilization of physician services will lead to improvements in the health status of Nova Scotians? Should not physicians shoulder some of the "burden of proof"?

There is justification for concentrating our efforts on attempts to rationalize the delivery of health care services, limit the growth in health expenditures and reallocate resources more appropriately. Emphasis must be put on the prevention of health problems and the promotion of well-being. Goals of adding years to life through reduced mortality from disease and injury,

adding health to life by reducing disabilities, and adding well-being to life by promoting optimal use of functional capacity and by decreasing the impact of problems that compromise the stability, self-fulfillment and autonomy of the individual, must be foremost.

The appropriate mechanisms must be put into place to ensure that goals are reached, methods are evaluated and players are accountable. The public must be educated on the costs and become a player in determining more appropriate ways to allocate health resources.

In view of the above, this report concludes that the province must address three primary goals: establish a managed rate of growth in physician expenditures, target a rate of growth in physician human resources and establish a more equitable distribution of physician services, within the context of a comprehensive physician human resource management strategy.

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Physician Manpower Planning
November 1989

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i) Introduction

In April 1988, the Nova Scotia Working Party on Physician Manpower Planning began a review of physician manpower requirements in Nova Scotia to the year 2000. This study was intended to provide recommendations to the Minister of Health and Fitness on the appropriate strategies necessary to:

i) achieve and maintain a practical balance in the supply of physician manpower in Nova Scotia

ii) ensure a more equitable distribution of physician services, and

iii) optimize cost effective physician manpower utilization and deployment.

It is to be noted this is a Preliminary Report for the Royal Commission on Health Care that presents a framework for a managed provincial growth strategy for physician human resources. It is not intended to identify specific physician manpower requirements for Nova Scotia.

The Working Party on Physician Manpower Planning consisted of a Steering Committee and a Research Subcommittee.

Steering Committee

Rick Cameron, Department of Health and Fitness (Chair)
Dr. Bernie Steele, Provincial Medical Board
Dr. Jean Gray, Dalhousie Medical School
Derek Dinham, Department of Health and Fitness
Dr. Tom Regan, Nova Scotia Royal Commission on Health Care
Dr. Robert Stokes, Nova Scotia Medical Society
Ron de Burger, Dalhousie University
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Research Subcommittee

Rick Cameron, Department of Health and Fitness (Chair)
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CHAPTER ONE

RATIONALE FOR A MANAGED PHYSICIAN GROWTH STRATEGY

1.0 "How many physicians do we need?"

Determining requirements for physician manpower is a complex process. For fifteen years, health manpower planners within governments, universities and professional associations throughout North America have been attempting to produce or commission answers to the question "How many physicians do we need?" The results of their investigations have not been encouraging. The principal thrust of the majority of these reviews has been towards refining and projecting physician supply data, computing the cost implications of continued supply-side growth, and suggesting ways and means of curtailing the net growth in physician numbers. Of late, the more ambitious reviews have been focusing directly on methods to contain the costs of physician services. The question regarding optimum physician manpower requirements, based on objective criteria such as needs, remains unanswered.

There are many reasons that a definitive answer to this question has yet to be achieved. In order for manpower planning to be truly effective, it should be an integral part of an overall health care planning process. Such a process should identify health care needs in relation to carefully defined health status indicators, and, as a function of these defined needs, establish health care delivery goals, priorities and strategies. These should be carefully monitored and evaluated in conjunction with precise health service outcome measures, all accountable within the context of projected, planned budgetary constraints. Such a health resources planning backdrop would allow manpower planners to develop an effective system that could optimize cost-effective physician manpower production, utilization and deployment. Unfortunately, such a system does not exist.

This chapter will provide an overview of the difficulties inherent in the development of a precise method of determining physician manpower needs and efficient allocation of resources, beginning with a review of the theory of the optimum allocation of resources in general, and of health resources in particular. This leads to consideration of practical problems faced by public sector decision makers when trying to achieve an optimum allocation of scarce resources within the health sector. Finally, the approach utilized in this study will be detailed.

2.0 Theoretical Principles of Resource Allocation

Two basic questions of resource allocation with respect to the health sector are,

1) How large should the health sector be? and
2) How many physicians are required?

The concept of "opportunity cost" should be central in answering these questions of resource allocation. Merely providing evidence that some positive benefits are produced from a particular resource expenditure is not sufficient to demonstrate that a resource is being used efficiently. The notion of economic efficiency requires that resources used for a particular purpose yield greater benefits in their current use than their opportunity cost, i.e., the benefits which would accrue from redirecting these resources to the next best alternative use.

The question of whether the health sector is too large or too small, relative to other sectors of the economy, must necessarily involve the question of opportunity cost. If the burden of evidence is that net gains would be realized through transfer of resources from some other sector of the economy to the health sector, then the health sector is too small, and resources should be redirected until a balance is achieved among competing sectors. A balanced allocation of resources among sectors is achieved when there are no longer any net gains expected from further redistribution of resources among sectors.

In the same manner, opportunity cost questions must also be directed to resources allocated within the health sector, including those allocated to physicians services. The provision of direct medical care by physicians is one of the ways in which improvements in health are produced. There are many other ways, besides direct patient care, whereby physicians contribute to improved health. These include medical research, teaching, public health, community health, and administrative activities.

Given the total resources available within the health sector now or in the future, are there likely to be net gains in health (and hence "utility") if resources are redirected from other health programmes to physicians' services? If the burden of evidence is "yes", then we require more physicians relative to other health professionals or programmes. To know whether a balance has been achieved, evidence is needed not only on how productive an additional physician is likely to be in improving the health of Nova Scotians, but also on how productive other health programmes would be in improving health if equivalent resources were made available to them.

From the above discussion, it can be seen that the principles of efficient resource allocation are really quite

simple. The reality of resource allocation is quite a different matter. The practical problems of allocating scarce health resources in an efficient manner are discussed next.

2.1 Resource Allocation in the Health Sector

In theory, the benefits and costs of seeking further improvements in health through provision of more physicians services, as compared to other means of achieving improvements in health, becomes the central question of resource allocation and physician requirements. Of course, the size of the provincial budget, and the portion of that budget allocated to the health sector, are also important determining factors.

In principle, a tremendous amount of information is required to determine physician manpower requirements. Information should be available to adequately assess the health status of the population, and thus its requirements for specific health resources. Demographic data that allows future projections of population needs is also essential. There must be information on the determinants of health and illness. Finally, an understanding of the effectiveness of medical procedures and health programs, through measurements of changes in health, is essential.

In practice, we have at best fragments of the information required, both with respect to the contribution of physicians' services and of other health programmes to improvements in the health of Nova Scotians and with respect to the values which should be placed on particular types of improvements to health. Decision making in the face of incomplete information and uncertainty is the norm rather than the exception.

The body of scientific knowledge regarding the foundations of good health and those factors which promote, maintain, and contribute to the restoration of good health has increased enormously in recent decades. This has led to more effective treatment of specific illnesses and conditions, improved methods of delivering health services, and an increased awareness of the pivotal role played by individuals and families in promoting, maintaining and restoring their own health.

The "informed opinion" of both health professionals and laymen concerning the appropriate size of health expenditures vis a vis other government programs, and the best way to allocate resources within the health sector, will continue to provide valuable information, however "soft," to decision makers at all levels. Consensus on allocation is difficult to achieve, given the paucity of relevant information on the effectiveness of health programmes which compete for scarce health care dollars. This is not unique to the health care sector - information

required for decision making in other public sectors is also inadequate.

The complexity of processes which contribute to improved health status is such that all the information needed to make rational choices about the correct size of competing programmes within the health sector will likely never be available. Nevertheless, resource allocation decisions must be made. Particular resource allocation decisions are made by thousands of administrators, health professionals, patients and interest groups, which collectively shape our health services system.

3.0 Measuring Health Inputs and Outcomes

Examples of the specific types of measurements required to make rational decisions about resource allocation in the health care sector are described below.

3.1 Health Status Indicators

It is extremely difficult to measure "health" in a way which captures the many dimensions of health in a single index. This is true for any individual's health. It is also true for the health of a large population, such as a province. It is much easier to measure illness, or at least particular types of illness. Mortality and morbidity measures have historically been used as a proxy for the measurement of health.

Health indices are difficult to construct for many reasons. First, there are mental, physical and social aspects of health, each of which is composed of many different components, and all of which are difficult or impossible to measure. Assigning relative values to different aspects of health presents many problems even at the level of the individual, who may have difficulty in assigning value to states of health (or illness), and different combinations of states of health, which he or she has never experienced. Assigning relative values to different aspects of health at the societal level involves other difficulties. Constructing a ranking of the relative value of different health states from the separate rankings perceived by individuals in the population is one problem. There is no consensus among health scientists on how to deal with this problem of comparing inter-personal differences in values and constructing a composite index of values. There is the additional complication associated with the fact that specific types of illness are not evenly distributed within a population. Instead, the incidence of particular types of illness is typically concentrated in particular age, sex, and socioeconomic groups. Consequently, the assignment of relative values to particular types of health and illness when constructing an index

of the health status of a population inevitably includes value judgments as to which groups within the population should receive greater consideration.

Second, although it is generally possible to determine, for each narrow dimension of health status, whether a particular state of health is "better or worse" than another state of health, it is not usually possible to measure "how much" better or worse, or at least not with much precision. Without the capacity to measure "how much" health status is improved as a consequence of receiving some health service it is impossible to be precise about the comparative cost-effectiveness of different health service programmes.

3.2 Determinants of Health

Many factors contribute to an individual's health at any given time. Lalonde's 1974 paper, A New Perspective on the Health of Canadians classified the determinants of health under four broad categories: HUMAN BIOLOGY, ENVIRONMENT, LIFESTYLE and HEALTH CARE ORGANIZATION. Recent contributions to the literature on the determinants of health have emphasized the role and responsibility of the individual in promoting his or her own health.

There are many useful ways to classify the determinants of health. Whatever organizing framework is used, however, there is general agreement that the promotion, maintenance and restoration of good health is accomplished in many ways. The allocation of resources among competing programmes designed to enhance health must recognize the need for a "balanced" allocation, taking into account the widely divergent strategies, programmes and combinations of resources needed to effect good health.

To appreciate why a good balance of programmes is ideal, consider the quantitative relationship between health inputs and health outcomes. The creation of improved health (through the avoidance of preventable losses of health or through clinical and other interventions which successfully restore some or all losses in health) is normally positively related to the amount of resources used for this purpose. These resources typically include an individual's own time, together with other inputs, such as the services of health professionals, nutrition, shelter, public health services, and so on.

The relationship underlying the notion of a "balanced" allocation of resources among competing programmes, all of which can demonstrate that their services contribute to an improved health, is that of "eventually diminishing returns". The production of improved health is subject to diminishing returns as more and more health resources are employed. This means that

as we move up the health status scale, it takes more and more resources to achieve any given improvement in health. Perfect health is approached, but is never achieved. Further improvements in health will only be achieved at increased cost per unit of health gained.

The above discussion deals with health service inputs as a whole. The same relationship of eventually diminishing returns also applies to particular health programmes and to particular health services. This being the case, it follows that a "balanced" allocation of resources among competing health programmes and services will be achieved when the cost per unit of health gained is the same for all programmes and services. In this situation, a dollar worth of resources is equally effective if allocated to any health programme or service.

3.3 Evidence of Effectiveness

Measurement of the relationships between health service inputs of various types and health outcomes should be central to resource allocation decisions. Health services research studies comparing the effectiveness, cost-effectiveness and cost-benefit aspects of different health programmes are necessary to enable informed decisions about whether more or fewer resources should be expended on specific programmes or services. However, this type of information is infrequently available.

Relevant evidence comes from the basic sciences, clinical practice, public health and epidemiological studies, and from various programme evaluation activities. Knowledge and measurement capabilities in the basic sciences and applications in the field of health services, have grown remarkably in recent decades. This knowledge is gradually applied in clinical practice as the effectiveness of treatment practices, both new and old, are subjected to critical scientific evaluation. This extends our knowledge of the effectiveness of particular treatments of specific health and illness problems.

Public health and epidemiological studies of the effectiveness of particular programmes on the health of the population at large, as measured by selected indices of health or illness, are by their nature less precise than basic science measurements. Despite this, evidence of the effectiveness of classic public health programmes (clean water, sewage treatment, infection control) is indisputable. Evidence of the effectiveness of other "community health" programmes, such as those designed to alter risk factors for heart disease through diet modification, weight reduction, and cholesterol control, is difficult to quantify and therefore more controversial.

Where measurements of change in health are possible, the

costs of undertaking long-term studies capable of measuring differences in programme effectiveness are typically quite large. Consequently, scientifically convincing health services research studies comparing programme effectiveness and cost effectiveness, using health outcome measures, are funded infrequently. Thus, while the value of undertaking systematic studies to compare the relative advantages of different types of health service programmes is recognized, there will never be a time when all the desired comparative studies have been completed, making trivial the job of decision-makers.

Aside from the difficulties in measuring clinical and programme effectiveness, there is no accepted way of adding up improvements in particular aspects of health and thereby arriving at an overall index of health, either for individuals or for a population. Consequently it is difficult to compare the relative effectiveness of particular programmes, clinical or otherwise, which are demonstrably effective in improving one or more aspects of health.

3.4 Valuing Improvements in Health

The problems discussed above have focused on the measurement of health, and changes in health, as a consequence of providing resources to operate different types of health service programmes. While there are many good indices which are admirably suited for the measurement of specific aspects of health, there is no general index of health.

Putting aside for the moment the problems in measuring improvements in health, there is the additional problem in determining what appropriate value to assign to any given improvement in health. How much individuals are willing to pay for improvements in health is signalled in private markets by prices. There are few price signals generated within the Canadian health services system where major programmes are publicly financed and services are provided to citizens as a matter of right, independent of ability or willingness to pay from their disposable incomes. In the absence of price signals, it is necessary to interpret a host of other signals concerning what people's tastes and preferences are and how much they are personally willing to pay, through taxes, for health services of various types.

The interpretation of calls for more health services of one type or another is particularly difficult within the context of the Canadian health services system. The cost to a particular health service lobby group, measured in terms of additional taxes which they, or the beneficiaries of this particular health service, can expect to pay personally if their requests are granted, are typically negligible compared to the cost of

resources required to expand this programme. There is therefore a tendency to ask for more than one would be willing to pay if one had to bear the full costs of a programme.

3.5 Interpersonal Comparisons: Whose Values?

Another issue is how to value "caring" in and of itself. The discussion to this point has focused on improvements in health as the immediate goal of health service programmes. Improved health raises our sense of wellbeing, and also improves market productivity. But many activities undertaken within health programmes of all kinds are provided with no prospect of improving health, as normally understood. Instead, "caring" is provided as something worthwhile in its own right. Caring is provided in varying degrees to all types of patients, from those expecting full recovery of health to those with terminal illnesses.

Caring absorbs resources, just as curing does. There appears to be no upper limit to the amount of caring which could be provided, and which would be appreciated by patients and their families. Somehow, society, through public sector decisions, must decide what portion of health sector resources should be allocated to services dedicated to "caring" objectives as opposed to programmes with other objectives.

The incidence of ill health, disease and suffering is not equally distributed within Nova Scotia. Certain types of illness vary systematically by socioeconomic status, for example. It is difficult to make value judgments about the relative severity of illness, suffering and disability associated with different types of health conditions. Yet, such comparisons must inevitably be made when deciding how to distribute available resources among programmes which are disease-specific or disability-specific.

Allocation decisions are of necessity value-laden, since assessments must be made of the relative severity of these different conditions. Such judgments will be reflected in the relative benefits assigned to whatever improvements in health that can be achieved for those suffering from the different conditions. Resource allocation decisions will be affected by these judgments.

4.0 Reconciling Competing Claims for Health Resources

There appears to be no upper limit to the perception, by recipients and providers of health services, that more services are needed. Somehow these competing claims must be reconciled with the limited resources available. The resources required to

fund existing and new public sector health programmes at levels desired by all interested parties exceed the public funds available.

It is ironic that, despite the wealth of data available from the basic health sciences and from health services research studies, there is relatively little information of the type which is most useful for purposes of objectively allocating resources among competing health programmes. Despite spectacular advances in knowledge, medical technology, clinical practices, and more effective delivery of a broad range of public health and community health programmes, the bottom line is that there remain major gaps in our knowledge base about the effectiveness and efficiency of particular services and broadly defined health programmes. There is also no established method of determining actual need for services, and distinguishing needs from consumer or provider induced demand for services.

Decision-makers in this environment rely on the best data available. This will include quantitative, scientific evidence on the effectiveness of competing services, technologies and programmes. It will also include qualitative information - the values and views of competing interest groups which lobby on behalf of those suffering from particular diseases, for instance. Decision-makers will also assess the views of informed professionals and others in the health services industry who have intimate knowledge of the system, and may be able to provide much valuable qualitative information not captured in available health indices, scientific literature and evaluation studies.

From these and other sources, judgments must be made of the relative costs and benefits associated with different types of health programmes, so that resources may, as far as possible, be allocated so as to maximize the health benefits accruing from these publicly financed programmes. In the absence of full and objective information on the merits of competing programmes, it is inevitable, and appropriate, that judgments be made about the nature of this missing information by sifting through qualitative evidence and views offered by patients, providers of services, special interest groups and taxpayers.

5.0 Projecting Future Physician Manpower Requirements

Given the impossibility of applying rational decision making approaches, such as opportunity cost, to the question of "How many physicians do we need?" how does one proceed in projecting future physician manpower requirements? Although information requirements can be identified, the information itself, on service inputs, health outcomes, etc, is not currently available. Because it is impossible to distinguish between needs and demands, "physician manpower requirements", in this context,

implies a normative element, i.e., how many physicians should we have.

5.1 Previous Studies and Initiatives

The following summary of studies shows that most manpower planning exercises have, somewhat understandably, elected to stand on firmer ground and simply refine supply-side arguments, rather than attempt to make, on behalf of the entire health system, the grandiose and indefensible assumptions that would be required to define precise manpower requirements.

Most demand-side estimates are based on current supply-side numbers adjusted to incorporate current geographical and intra-professional distribution disparities. This status quo approach, taken year by year in the face of a continued strong growth in physician supply, has lead in some sectors to a parallel annual increase in estimates of physician requirements.

A host of other complicating factors such as the introduction of new medical technologies, the needs of the growing geriatric population and the increasing numbers of sub-specialties, have made manpower planners even more reluctant (given the context of a fee-for-service system that by its very nature supports, and even encourages, the high degree of elasticity in the demand for physician services) to attempt to present specific requirement numbers.

A number of earlier studies of physician manpower were reviewed in preparation of this report. These include the Hall Royal Commission 1964, Canadian Immigration Act Revisions 1974, and Federal-Provincial Physician Manpower Studies since the 1970's. Background studies for this report include a comprehensive review of past practices, not summarized here. These include: Trend Projections; Population per Physician Target Ratios; Delphi Techniques; and Epidemiology-Based Requirements. After reviewing these manpower studies, the following conclusions were reached.

Since the 1970's there have been many federal and provincial studies of physician manpower requirements. There is a growing consensus that population/physician ratios are already adequate for certain specialties and locations in Canada. There is also the perception that, given continuation of current rates of growth in Canada's population and physician population, adequate population/physician ratios will soon be achieved in other specialties, despite the persistence of shortages in certain specialties and geographic locations.

There is no consensus at the federal-provincial level on what action to take to reduce the rate of decline in Canada's

population/physician ratio. A major stumbling block appears to be how the political burden of such an adjustment would be shared among federal and provincial governments. As long as provincial licensing regulations permit the movement of physicians among provinces, cooperative federal-provincial action is required to reduce the rate of growth of physicians. There is no incentive for any province to bear the entire burden of an adjustment in the supply of physicians in the Canadian market for physicians, where the benefits will be shared by all other governments.

In the absence of federal-provincial action to restrict the rate of increase in numbers of physicians in Canada, individual provinces have taken various initiatives in an attempt to limit the rate of growth of physicians in their jurisdictions, and thereby constrain the rate of growth of public expenditures on physicians services and related expenditures.

British Columbia introduced measures to limit the licensing of physicians in areas deemed to be already adequately supplied. The province also attempted to limit the number of new Medicare billing numbers issued, as a function of both specialty and location of practice. Both initiatives were challenged and rejected by the courts. British Columbia and other provinces are likely to introduce variations of the Billing Number Initiative.

At least five provinces have attempted to place upper limits on total or "global" expenditures for physicians services covered under their provincial medicare programmes. Details of these initiatives are given in a background paper prepared for this study. Such caps on expenditures, if successful, will introduce new pressures and incentives for the principal actors in Canada's market for physicians services. These new incentives may lead, over time, to concerted action to deal directly with the continued rapid growth of physicians relative to the population. Meanwhile, one can expect the provinces to continue to develop new initiatives which deal indirectly, rather than directly, with issues of physician requirements.

6.0 Approach Adopted in Nova Scotia Study

In view of the above, it became clear early in our review than no single, reliable measure of physician demand could be developed. Each measure (e.g. medical services utilization data, community epidemiological profiles) appeared merely descriptive, rather than an indicator of true need. Demand surveys of hospitals, the medical school, and communities provided wide-ranging results. The evidence does not currently exist to allow conclusions on the opportunity cost of resource expenditure on physician services, as opposed to expenditure on other programmes and services that impact health.

The approach adopted in this study of physician manpower requirements in Nova Scotia over the next decade or two recognizes that physician manpower planning is a process which operates at many levels. Given that studies of this nature occur only periodically, at intervals of several years of more, it was considered appropriate to adopt a strategic planning perspective which would focus on major physician manpower requirement issues.

The development of a comprehensive physician human resource management strategy is far reaching in its policy implications. To be effective, such a scheme must examine a number of major policy issues that impact on the supply, production, utilization and demand for physicians. It must identify the relevant planning variables and establish a process by which guidelines can be developed, based on normative ranges, to identify and meet physician manpower requirements.

A strategic planning framework is developed with respect to physician requirements in Nova Scotia, which will serve to inform the Nova Scotia Royal Commission on Health Care and other interested parties about the issues and options. This framework considers questions of physician requirements within the broader framework of the allocation of resources among competing public health programmes.

Determination of detailed physician requirements within these broad categories is perceived to be appropriately dealt with through ongoing programmatic reviews of physician requirements, which occur at many levels. These include annual or more frequent reviews by the Department of Health and Fitness, the Nova Scotia Health Services and Insurance Commission, hospital administrators and department heads, Dalhousie Medical School, the Maritime Provinces Higher Education Commission, the medical societies in the three Maritime Provinces, the Canadian Medical Association, the Royal College of Physicians an Surgeons, and various federal-provincial working groups. All of these parties and many others are stakeholders in issues related to physician manpower requirements. Each plays a legitimate role in presenting information and alternative viewpoints on these issues. Mechanisms are in place to facilitate the regular interaction of the various interested parties.

A decentralized decision-making process is appropriate for questions of detail regarding physician manpower requirements. In this context expert knowledge may be brought to bear in a timely manner which would be impossible to achieve through a more centralized system of determining physician manpower requirements.

The strategic planning approach and the ongoing programmatic reviews of physician manpower requirements complement one another. The strategic planning approach helps senior decision-makers to set broad objectives related to physician manpower planning. The ongoing programmatic reviews of changing requirements proceed within the context of the broad objectives and strategies adopted. It is important that monitoring mechanisms are in place to ensure that the collective decisions taken throughout the health services system are consistent with the broad objectives established at the strategic planning level.

CHAPTER TWO

NOVA SCOTIA PHYSICIAN SUPPLY DATA

Part A: National Comparisons

1.0 National Physician Supply Data

National comparisons (ten province total) of physicians show Nova Scotia ranks above median values in almost all categories of specialties and in general practice. Based on actual physician counts, Nova Scotia ranking for population per physician shows that the province ranks first overall in the "General Practitioners" and "All Physician" categories. (See Table 1).

The Full-time Equivalent (FTE) measure is a more accurate reflection of physician productivity [1]. Using this measure, Nova Scotia ranks third overall in the "All Physician" category and ranks first in Cardiovascular & Thoracic Surgery, General Surgery and Neurosurgery.

Nova Scotia ranks equal to or above the Canadian median in all categories except Dermatology (Ranks 6th), Obstetrics and Gynecology (Ranks 7th), Orthopedics (Ranks 8th) and Psychiatry (Ranks 7th).

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[1] The Federal/Provincial Working Group for the Development and Review of Medical Care Statistical Indicators developed a national standard for computing full-time equivalency to allow for inter-provincial comparisons and provide a venue for national planning of physician manpower based on a common indicator.

The full-time equivalent (FTE) numbers give an accurate measure of physician productivity and provide a standardized measure of comparison.

The FTE count is calculated by first defining a minimum activity above which a physician is counted as one full-time equivalent physician (or an activity range within which a physician is counted as one typical full-time physician). Second, certain physicians i.e. those that fall below the benchmark or outside the range, or all of the physicians, are converted into full-time equivalents on the basis of one or more characteristics of the set of full-time physicians, for example the value of the minimum or maximum benchmark, the median value or in the case of ranges, the upper or lower benchmarks. The national FTE measure uses a range of activity levels within which physicians are defined as typical full-time physicians.

The FTE measure has gained wide acceptance from both medical associations and provincial governments as a measure of physician supply and productivity.

Table 1
Population/Physician Ratios
Nova Scotia and 10 Provinces Average
Actual Numbers and Full-Time Equivalents
1987/88

Specialty	Nova Scotia				10 Provinces	
	Physicians	Rank	FTE	Rank	Physicians	FTE
General Practice	914	1	1,192	4	1,043	1,283
Anaesthesia	11,122	2	13,967	3	13,440	14,907
Cardiovascular Surg.(Thoracic)	61,965	1	60,370	1	111,518	125,536
Dermatology	66,732	4	113,252	6	59,528	61,757
General Surgery	9,639	1	11,761	1	13,130	14,981
Internal Medicine	6,067	4	8,653	5	5,951	6,360
Neurology	72,293	5	86,492	5	55,882	59,959
Neurosurgery	144,585	3	125,544	1	141,092	150,178
Obstetrics and Gynecology	21,159	6	25,388	7	17,209	18,648
Ophthalmology	24,098	2	24,652	3	26,300	26,958
Orthopedic Surgery	43,376	8	41,909	8	26,854	30,996
Otolaryngology	43,376	4	51,120	3	43,804	47,193
Paediatrics	13,992	3	21,693	5	15,610	17,727
Physical Medicine	96,390	1	114,146	2	123,969	117,653
Plastic Surgery	108,439	6	91,703	5	74,672	84,741
Psychiatry	10,206	4	15,880	6	9,344	10,518
Urological Surgery	48,195	3	55,115	5	51,384	51,766
All Physicians	541	1	701	3	589	688
Medical Specialists	2,158	4	3,075	5	2,192	2,397
Surgical Specialists	3,429	3	3,817	3	3,555	3,896

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* Nova Scotia Insured Population 1987/88 is 867,511. Ten province net population is 25,537,693. Population is based on Preliminary Post Censal Estimate. Net population figure is produced by excluding the total estimates of R.C.M.P., the Canadian Armed Forces and the number of inmates in federal and provincial institutions.

** Source: Maritime Medical Care Inc. 1987/88 and Health and Welfare Canada (May 10, 1987). Full-Time Equivalent Physicians-- Interprovincial Comparisons-- Methodology and Statistics from 1983/84 to 1987/88.

Part B: Nova Scotia Physician Supply Data

1.0 Growth of Physicians and Full-Time Equivalents

During the seventeen years from 1970-71 to 1987-88, the number of fee-for-service physicians grew by 79.3%. Fee-for-service physicians include all physicians who received any payment from M.S.I. during the year. Full time equivalents (FTE's) relate a physician's billings to a normal range of output for full time physicians, and therefore standardize for different levels of activity among physicians. The rate of growth in full time equivalents was 88% over the seventeen year period. As shown in Table 1 the rates of growth were almost identical for physicians paid and FTE's in general practice and medical specialties. There was considerable diversion, however, in the case of surgical specialties.

Five year rates of growth during the last fifteen years are shown in Table 2. In the case of general practitioners, there was rapid growth during the five years between fiscal 1973 and 1978. The rate of growth slowed during the next five years and then increased again during the most recent five years. The trends for specialists were geometrically inverse to the trend for G.P.'s, with the greatest rates of growth occurring between the 1978 and 1983 fiscal years.

It is also interesting to note that the rate of growth in general practice FTE's has been less than the rate of growth in the number of G.P.'s during the last ten years, following a more rapid rate of growth in the first five years.

Medical specialists had the most rapid rates of growth. FTE's and physicians grew at similar rates during the first ten years, but FTE's have grown more rapidly than physicians during the most recent five years. For surgical specialists, the rates of growth in FTE's have consistently outpaced the rates of growth in physicians. Differences between the rates of growth in FTE's and physicians paid tend to indicate changes in workload. The trend among G.P.'s could indicate an increasing number of physicians in part-time practice, or it could indicate a possible surplus of physicians, leading to lower average workloads. In the case of medical specialists, the higher rate of growth for FTE's relative to physicians in the most recent five year period could be the result of the time lags within which new physicians increase their FTE status.

1.1 Surgical Specialties

Surgical specialists represent a special case, and illustrate quite dramatically how the use of FTE counts can be more appropriate to measure the capacity of the physician

population than simple physician counts. Table 3 illustrates that there was a considerable turnover in the number of practicing surgeons during the ten years from fiscal 1978 to 1988. Seventy surgeons left practice during that period while ninety-eight entered practice. Those who left represented a relatively small number of full time equivalents, while those who remained, and new physicians who established practice, had a combined ratio of FTE's to physicians of 90%.

Another way of looking at the surgical data is that the cohort of physicians who were continually in practice over the 10 years period represented approximately 80% of the total surgical FTE's in fiscal 1978, and approximately 61% in fiscal 1988. Clearly, the replacement surgeons during that ten year period, while adding only modestly to the number of practicing surgeons, had a major effect on the growth of surgical capacity within the province.

An interesting observation is the fact that the cohort physicians maintained, on average, an almost constant level of output as measured by their full time equivalency. Within this group of physicians there was considerable variation, however: 32 of the 155 physicians increased their output by more than 25% while 38 decreased output by more than 25%. The degree of variability, expressed by the co-efficient of variation, increased from 37.5% in fiscal 1978 to 50.9% in fiscal 1988. The median age of the cohort physicians was 58 in fiscal 1988. Using the ratio of FTE's to physicians as a crude measure of productivity, these data illustrate the fact that surgeons tend to be quite productive during the later years of practice. New physicians had a median age of 39 during fiscal 1988.

Together these observations suggest that an increase in productivity can be expected within a specialty group as the group becomes younger through the influx of new physicians. At the same time, however, the ageing of a cohort may produce ambiguous effects. During the early years of practice, productivity would be expected to increase. During the mid years of practice, productivity may be reasonably constant, while at the older ages a decrease in productivity may be expected.

2.0 Nova Scotia Physicians by Age

Tables 4 through 6 provide distributions of physicians and full time equivalents by age. One of the most significant observations from the tables is that the distribution of FTE's tends to produce a younger population than the distribution of physicians. This finding is intuitively reasonable, as workload would tend to decrease beyond certain age thresholds. An inspection of the relationship between physicians and FTE's in the tables suggests that this threshold occurs at about the age

of 55 for GP's, at about 65 for surgical specialists, and somewhere between those ages for medical specialists.

Among the three categories of GP's, medical and surgical specialists, GP's are the youngest group, with 65.9% of FTE's below the age of 45. Corresponding percentages are 48% for medical specialists and 35.9% for surgeons. All three groups of physicians became younger as a result of rapid growth during the last five years. This finding holds true regardless of whether measurements are based on FTE's or the number of physicians.

The percentage of surgical FTE's in the 55 and over category dropped during the five years from fiscal 1983 to fiscal 1988, from 35.2% to 31.5%. Although a significant number of surgeons remain in practice after age 65, the ratio of FTE's to physicians drops off significantly in that age group. Another study which was done recently on general surgeons, which standardized for type of practice, indicated that while 10% of the physicians in a specialty were 70 years of age or over in 1987-88, their surgical full time equivalency was zero - in other words, these physicians were still in practice but not doing surgery. These facts, combined with rates of growth in FTE's over the last 15 years that were almost three times the rate of growth in the number of surgeons, suggest that there is little reason for concern about future shortages in the surgical specialties.

There were relatively high percentages of general practitioners and medical specialists under age 45. These physicians, for the most part, have not yet reached their most productive years, which tend to occur between the ages of 45 and 54. This suggests that within these two groups of physicians there will be a tendency for greater effective supply as the population now in practice ages.

3.0 Nova Scotia Physicians by Sex

The increasingly larger numbers of women entering medical practice is a well known phenomenon. The participation of female physicians in different specialty groups varies, however, as shown in Table 7. Female physicians account for 18.7% of the effective supply of general practitioners (using FTE's as the most appropriate measure of effective supply). Female participation is low in surgical specialties, representing only 3.2% of effective supply.

For general practitioners, the rate of growth in male and female FTE's has been approximately the same in absolute terms. On a percentage basis, however, female physicians have grown much more rapidly than male physicians. The rate of growth in female FTE's has been virtually identical to the rate of growth in

female physicians. This was not the case for male physicians, however, with FTE's growing at less than two-thirds the rate of physicians.

Of the overall growth of 121 female physicians, 98 were in general practice, 17 in the medical specialties, and 6 in the surgical specialties. In view of the fact that the large increase of females in medicine is a relatively new phenomenon, the much higher rate of growth in general practice is understandable, as it typically takes four additional years to obtain specialty certification. Female physicians represent slightly more than 30% of general practitioners among physicians less than 35 years of age, both in terms of the number of physicians and of FTE's. In addition, 22 of the 60 female specialists were practicing in the specialty of paediatrics, where they represent approximately one-third of fee-for-service physicians.

3.1 Productivity of Female Physicians

It has been argued that the increasing number of female physicians may imply lower average output, presumably due to fewer average hours of work per week and the interruption or cessation of practice by many female physicians with parental responsibilities. These speculations tend to be reinforced by income studies which showed that average incomes for female physicians are less than average incomes for male physicians.

Average gross incomes to physicians are equivalent to the value of patient care output in a fee-for-service system. Average incomes vary considerably across specialties, and a comparison of overall differences in income may obscure differences that occur as a result of specialty selection by female physicians. Average incomes may also be affected by physicians who practice on a part-time basis or those who practice temporarily during the year (e.g. those who enter specialty training or leave the province).

In Table 8 the question of average output is examined by calculating the average fee-for-service payment per FTE. It should be noted that the FTE measure is not, strictly speaking, appropriate for income studies as physicians at the upper end of the output distribution are counted as more than one full time equivalent. FTE's may be used to compare average output of physicians in similar specialties, however, as the FTE count itself standardizes for high or low levels of practice, and allows total expenditure for each group of physicians to be included in the numerator. By contrast, income studies using fixed cut-offs to eliminate the lower end of the distribution may be skewed considerably by high income physicians where total numbers are small. Studies that include only a portion of the

physician population also do not account for the contribution of part-time physicians.

As shown in Table 8 the overall average output per female full time equivalent is 80.8% that of male FTE's. Within the specialty groups, however, the output of female physicians ranges from 87% to 96% of that of male physicians. The value of average output for GP's tends to be less than for specialists. Female physicians are heavily concentrated among GP's (77.7% of FTE's compared with 55.7% for males). As a consequence, measures which concentrate on all physicians tend to produce a level of relative output that is lower than any of the specialty groupings.[2]

The question of attrition for female physicians has focused on the probability that certain female physicians will leave practice either temporarily or permanently when they have children. Although this is a relevant concern it should be seen as part of a larger question of attrition among physicians in general. This professional group is highly mobile. As an illustration, Nova Scotia physicians who had graduated in 1980 or 1981 and were registered with M.S.I. at the end of fiscal 1983 were followed over the subsequent five years. There were 65 physicians who met these criteria (they were not necessarily Dalhousie graduates), consisting of 51 males and 14 females. The 1981 graduates entered practice in fiscal 1983, after their year of internship (See Table 9). The number of physicians and FTE's who received fee-for-service payments in each of the following fiscal years is shown in Table 10.

In fiscal 1984, the number of physicians was virtually the same, and FTE's had increased somewhat from the previous year. By the end of fiscal 1988, 17 of the male physicians and 5 of the female physicians were no longer practicing. On a percentage basis, the rates of attrition were approximately the same for the two groups. The physicians who remained were carrying slightly higher effective workload than in fiscal 1983, however, although this workload was lower than in the peak year of fiscal 1984. It may be that a longer period than six years should be used to fully determine the rates of attrition among physicians. The female physicians in the study had an average age of 27 during fiscal 1983, and 32 in fiscal 1988.

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2 It should be remembered that output, in an accounting sense, consists of the amount of medical care provided and the value of that care, on a per service basis. Fee schedule values reflect a number of subjective components other than time requirement. For that reason output, measured through expenditure, is not directly proportional to input; and inter-specialty differences in measured output do not necessarily reflect longer hours of work.

The rates of attrition in Table 9 do illustrate that with mobile populations it is not appropriate to focus on attrition rates for one subset of the population in isolation from the group as a whole. It also illustrates that effective supply, as measured through FTE's, is more appropriate for such studies than simply the number of physicians who may be registered or who receive fee-for-service payments at a particular time.

4.0 Physicians by Medical School of Graduation

Table 10 shows the distribution of Full Time Equivalents in 1987-88 by years of practice in Nova Scotia and by medical school of graduation. Years of practice were measured from the physician's opt-in date.

For physicians in practice 1-5 years, the percentage who graduated from Dalhousie Medical School ranged from 48% to 62.2%, with an average of 54.6% throughout the five year period. For physicians in practice over five years, the percentage who graduated from Dalhousie increases with the length of time in practice. The percentage of FTE's who graduated from other Canadian medical schools is highest among physicians in practice less than five years, while the percentage from foreign medical schools is highest in the 10-15 and over 15 year categories.

The proportion of foreign FTE's during the different time periods would have been influenced by immigration restrictions in the mid 1970's. It is interesting that, notwithstanding these restrictions, over the last five years new foreign physicians almost equalled the number of new physicians who graduated from Canadian medical schools other than Dalhousie.

The distribution of physicians by school of graduation may change as years of practice increase, due to practice mobility. Graduates of Dalhousie would be more likely to have social and cultural ties to Nova Scotia than the other two groups. Conversely, graduates of other Canadian medical schools would be most likely to have social commitments to other areas of Canada, and would therefore be expected to be the most mobile of the three groups. Consequently, the distribution for years other than the most recent one would reflect both the origin of physicians who registered in those years, and attrition thereafter.

5.0 Physician Full-Time Equivalents by County

Table 11 shows the number of full time equivalents per 100,000 population during 1987-88, by county. Percent changes during the ten years since 1977-78 are also shown.

This Table is included for reference only at this point. It is difficult to interpret the significance of the percentage changes without reference to the actual numbers involved (for example, the 115% change in Richmond County consisted of an increase from 4.3 FTE's to 8.7). For that reason Tables 12 and 13 are also included. They show the actual number of physicians and FTE's in each of the two years.

Part C Signs of Surplus

In the case of fee-for-service practice, physician surplus is not definable in a finite sense. If appropriate levels of care were known and agreed upon, if diagnoses were certain and the range of treatable conditions limited, then surplus would exist when more services were available than were needed. In a competitive market, price would be driven down to the point where some physicians would leave practice, and markets would be cleared. As none of the necessary conditions for surplus definition exist in the market for physicians services, excess supply must be defined in relative terms.

Surplus, in a relative sense, must be based on some criteria of what is "sufficient". In conjunction with economic considerations, sufficient care could be defined to exist when the marginal cost of additional medical care would exceed the value of marginal benefits, defined in terms of improvements in health status. This calls forth the literature dealing with "tragic choices", and recommends to policy makers a position no one wants to be in: that in the absence of price rationing and informed choice, either physicians or employees of government should ration utilization by refusing care in defined circumstances.

Criteria of sufficiency may be defined in comparative terms. Comparative sufficiency, or surplus, requires a standard to which comparisons may be made. In the case of physician supply in any Canadian province the obvious standard would be defined by national standards. Presumably, provinces that place a higher than average value on the availability of physicians would aspire to exceed the national norms, while those that have more modest aspirations would seek only to achieve that standard, subject perhaps to a provincial budget constraint that recognizes the whole range of public services or private sector incentives that compete for provincial funding.

Comparisons to national norms show that Nova Scotia exceeds the median for full-time equivalent physicians. Nova Scotia also exceeds the median for per capita expenditure, both before and after adjusting for inter-provincial differences in fee levels.

By reference to national norms, Nova Scotia is clearly justified in declaring a surplus in physician supply.

In a classic demonstration of the proposition that health care expenditures are at least adequate but are distributed sub-optimally, there is apparently evidence that the provincial population suffers age-sex standardized levels of morbidity and mortality that are below national norms, and that the discrepancy in health status is growing despite our greater utilization of physician services. In these circumstances, is it necessary to search further for signs of surplus? Or are we justified, if not compelled, to concentrate our efforts on attempts to rationalize health care, or at least to limit growing expenditures on the utilization of physician services in order to free up resources for a pursuit of such a rationalization?

If there were a need to demonstrate surplus at a micro level, consider the following possibilities available to the physician/supplier faced with conditions of surplus:

1. provide more care to susceptible populations, such as the elderly.

2. provide more care that is remunerated on the basis of time, such as psychotherapy.

3. provide innovative practice settings that reduce patient access costs, such as walk-in clinics. In economic terms, reducing marginal costs to patients encourages the use of care that would not otherwise be used because it is perceived to have low marginal value.

4. provide care that may both lower patient access cost and increase physician supply costs, such as home visits. In effect, the provision of such service may stimulate the price reduction that would occur if markets were competitive.

5. organize practices to limit hours of work and achieve efficiencies of scale. The current trend to group practice in urban environments may be a manifestation of this. In addition, group practice places the solo practitioner at a competitive disadvantage and may serve to limit entry. It could also be argued that possibilities for demand generation are greater in a group practice environment than in solo practice because of the greater availability of care in the former.

6. seek to limit competition through restricted access to resources, such as hospital admitting privileges.

The phenomena of surplus listed above can be found to

varying degrees in Nova Scotia. Except for the last one, they can also be argued to represent improvements in care, or response to exogenous demand from patients. Therefore, they are less satisfactory signs of surplus than comparisons to criteria that can be agreed upon. It is also worth noting that most of them can be observed by viewing supply-side information, and do not require complex utilization studies.

TABLE 1
NUMBER OF FEE-FOR-SERVICE PHYSICIANS AND FULL-TIME EQUIVALENTS

	F.T.E.'s		Number - Physicians Paid -	
	1970-71	1987-88	1970-71	1987-88
G.P.'s	403.8	724.3	524	945
Medical Specialty	114.5	280.4	165	401
Surgical Specialists	136.7	226.9	203	253
Total	655.1	1,231.7	892	1,599

	--- Rates of Growth --	
	F.T.E.'s	Physicians Paid
G.P.'s	79.4%	80.3%
Medical Specialty	144.9	143.0
Surgical Specialists	66.0	24.6
Total	88.0	79.3

Source: Maritime Medical Care Inc.

TABLE 2
FIVE YEAR RATES OF GROWTH
IN FEE-FOR-SERVICE PHYSICIANS AND F.T.E.'s

	1972-73 to 1977-78	1977-78 to 1982-83	1982-83 to 1987-88
G.P.'s			
F.T.E.'s	29.0	8.8	18.2
Physicians	26.7	10.3	21.2
Medical Specialists			
F.T.E.'s	18.2	40.1	32.7
Physicians	16.9	41.7	24.1
Surgical Specialists			
F.T.E.'s	15.9	20.1	9.5
Physicians	5.6	6.2	5.9
Total			
F.T.E.'s	24.3	16.3	19.4
Physicians	20.1	15.7	19.6

Source: Maritime Medical Care Inc.

TABLE 3
SURGICAL SPECIALISTS AND FTE'S
ATTRITION AND GROWTH 1977-78 TO 1987-88

	Surgical Specialists							
	In Practice During 1977-78		Left Practice Since 1977-78		New Pnysicians Since 1977-78		Total	
	Phys	F.T.E.	Phys	F.T.E.	Phys	F.T.E.	Phys	F.T.E.
1977-78	225	172.5					225	172.5
1982-83	182	166.8	(43)	-	57	40.4	239	207.2
1987-88	155	137.4	(70)	-	98	89.5	253	226.9

DISTRIBUTION OF SURGEONS AND FTE'S

	-- Fiscal 1977-78 --			-- Fiscal 1987-88 --	
	Phys	FTE	Ratio Of FTE To Phys	FTE	Ratio Of FTE To Phys
Physicians in Practice 1977-78 to 1987-88	155	138.5	.88	137.4	.88
Physicians Who Left Practice	70	34	.49	-	-
New Physicians	98	-	-	89.5	.91
TOTAL	225	172.5	.76	226.9	.90

Source: Maritime Medical Care Inc.

TABLE 4
DISTRIBUTION OF PHYSICIANS AND FTE'S BY AGE
GENERAL PRACTITIONERS

	--- 1982-83 ---		--- 1987-88 ---		Rate Of --- Increase --	
Age	Phys	Fte's	Phys	Fte's	Phys	Fte's
< 35	248	178.0	348	219.0	40.3	23.0
35 - 44	198	176.3	291	254.1	47.0	44.2
45 - 54	129	120.6	126	125.5	-2.3	4.1
55 - 64	122	107.9	95	74.3	-22.1	-31.1
65 +	47	21.3	68	44.8	44.7	110.3
	744	604.1	928	717.8		
Unknown	36	8.8	16	9.3		
	780	612.9	944	727.1	21.0	18.6

PERCENT DISTRIBUTION BY AGE

	--- 1982-83 ---		--- 1987-88 ---	
Age	Phys	Fte's	Phys	Fte's
< 35	33.3	29.5	37.5	30.5
35 - 44	26.6	29.2	31.4	35.4
45 - 54	17.3	20.0	13.6	17.5
55 - 64	16.4	17.9	10.2	10.4
65 +	6.3	3.5	7.3	6.2
	100.0	100.0	100.0	100.0

Source: Maritime Medical Care Inc.

TABLE 5
DISTRIBUTION OF PHYSICIANS AND FTE'S BY AGE
MEDICAL SPECIALISTS

	--- 1982-83 ---		--- 1987-88 ---		Rate Of --- Increase --	
Age	Phys	Fte's	Phys	Fte's	Phys	Fte's
< 35	40	23.7	70	39.7	75.0	67.5
35 - 44	104	74.6	130	92.3	25.0	23.7
45 - 54	72	53.8	100	85.1	38.9	58.1
55 - 64	60	45.2	52	39.8	-13.3	-11.9
65 +	35	11.1	40	18.1	14.3	63.1
	311	208.4	392	275.0		
Unknown	12	2.9	7	4.9		
	323	211.3	399	279.9	23.5	32.5

PERCENT DISTRIBUTION BY AGE

	--- 1982-83 ---		--- 1987-88 ---	
Age	Phys	Fte's	Phys	Fte's
< 35	12.9	11.4	17.9	14.4
35 - 44	33.4	35.8	33.2	33.6
45 - 54	23.2	25.8	25.5	30.9
55 - 64	19.3	21.7	13.3	14.5
65 +	11.3	5.3	10.2	6.6
	100.0	100.0	100.0	100.0

Source: Maritime Medical Care Inc.

TABLE 6
DISTRIBUTION OF PHYSICIANS BY AGE
SURGICAL SPECIALTIES

	--- 1982-83 ---		--- 1987-88 ---		Rate Of --- Increase --	
Age	Phys	Fte's	Phys	Fte's	Phys	Fte's
< 35	20	13.4	15	11.4	-25.0	-14.9
35 - 44	63	59.9	65	69.3	3.2	15.7
45 - 54	57	60.7	71	73.3	24.6	20.8
55 - 64	67	60.8	55	52.0	-17.9	-13.3
65 +	29	11.9	44	18.8	51.7	58.0
	236	206.7				
Unknown	3	0.5				
	239	207.2	250	224.7	4.6	8.4

PERCENT DISTRIBUTION BY AGE

	--- 1982-83 ---		--- 1987-88 ---	
Age	Phys	Fte's	Phys	Fte's
< 35	8.5	6.5	6.0	5.1
35 - 44	26.7	29.0	26.0	30.8
45 - 54	24.2	29.4	28.4	32.6
55 - 64	28.4	29.4	22.0	23.1
65 +	12.3	5.8	17.6	8.4
	100.0	100.0	100.0	100.0

Source: Maritime Medical Care Inc.

TABLE 7
DISTRIBUTION AND GROWTH OF PHYSICIANS AND FTE'S
BY SEX 1982-83 TO 1987-88

	-- 1982-83 --		-- 1987-88 --		Rate Of -- Increase --	
	Phys	FTE's	Phys	FTE's	Phys	FTE's
General Practitioners						
Males	603	529.1	722	590.3	19.7%	11.6%
Females	123	75.6	221	135.5	79.6	79.2
Percent Female		16.9	12.5	23.4	18.7	
Medical Specialists						
Males	266	189.9	337	246.6	26.7	29.9
Females	43	20.4	60	32.7	39.5	60.3
Percent Female	13.9	9.7	15.1	11.7		
Surgical Specialists						
Males	229	202.3	240	217.5	4.8	7.5
Females	4	3.7	10	7.2	100.5	94.5
Percent Female	1.7	1.8	4.0	3.2		
Total						
Males	1,098	921.3	1,299	1,054.4	18.3%	14.4%
Females	170	99.7	291	175.4	71.2	75.9
Percent Female	13.4	9.8	18.3	14.3		

Note: Excludes physicians whose sex was unknown:
37 physicians; 5.7 FTE's in 1982-83
3 physicians; 1.9 FTE's in 1987-88

Source: Maritime Medical Care Inc.

TABLE 8
DISTRIBUTION OF PHYSICIANS AND AVERAGE M.S.I.
FEE-FOR-SERVICE EXPENDITURE PER FTE, BY SEX - 1987-88

	----- Males -----		---- Females ----		
	FTE	Expenditure Per FTE	FTE	Expenditure Per FTE	Females As A % of Males
General Practitioners	587.9	$128,976	136.4	$114,936	89.1%
Medical Specialists	248.6	143,298	31.9	124,864	87.1
Surgical Specialists	219.7	207,965	7.3	199,806	96.1
Total	1,056.2	$148,776	175.6	$120,268	80.8

Source: Maritime Medical Care Inc.

TABLE 9
1980 AND 1981 GRADUATES PRACTICING IN NOVA SCOTIA
1982-83 TO 1987-88

	--- Males ---		-- Females --		---- Total ----	
	Phys	FTE	Phys	FTE	Phys	FTE
1982-83	51	30.7	14	4.9	65	35.6
1983-84	50	38.1	14	6.2	64	44.3
1984-85	42	37.5	13	5.2	55	42.7
1985-86	38	35.3	11	5.1	49	40.3
1986-87	37	33.7	10	5.3	47	39.0
1987-88	34	31.3	9	5.3	43	36.6
1987-88 Percent Of 1982-83	66.7%	102.0%	64.3%	108.2%	66.2%	102.8%

Source: Maritime Medical Care Inc.

TABLE 10
FTE'S BY YEARS IN NOVA SCOTIA AND BY MEDICAL SCHOOL OF GRADUATION, 1987/88

Years in N.S.	Dalhousie	Canadian	Foreign	Total
Less than 1	23.8	8.9	8.3	41.0
	58.0%	21.7%	20.3%	
1	30.3	16.9	16.0	63.2
	48.0%	26.7%	25.3%	
2	35.7	18.7	14.2	68.6
	52.0%	27.3%	20.7%	
3	36.2	14.8	9.2	60.2
	60.1%	24.6%	15.3%	
4	33.6	18.8	11.4	63.8
	52.6%	29.5%	17.9%	
5	32.0	4.8	14.6	51.4
	62.3%	9.3%	28.4%	
1 - 5	167.8	74.0	65.4	307.2
	54.6%	24.1%	21.3%	
6 - 10	139.0	42.9	49.0	230.9
	60.2%	18.6%	21.2%	
11 - 15	133.3	15.7	71.7	220.7
	60.4%	7.1%	32.5%	
Over 15	257.8	34.7	117.9	410.4
	62.8%	8.5%	28.7%	
TOTAL	720.8	174.7	315.3	1210.8
	59.5%	14.4%	25.7%	

Note: Excludes physicians who ceased practice during 1987/88.

Source: Maritime Medical Care Inc.

TABLE 11
FTE's PER 100,000 POPULATION AND PERCENT CHANGE OVER 10 YEARS

	1987-88				Percent Change			
		- Specialists -				- Specialists -		
	GP	Med	Surg	Total	GP	Med	Surg	Total
Annapolis	62.7	4.7	12.9	80.3	1.5	14.6	130.4	12.5
Antigonish	90.1	17.8	41.1	148.9	7.0	117.1	63.7	26.7
Cape Breton	80.6	20.1	24.0	124.8	28.5	101.0	6.2	31.0
Colchester	88.4	10.4	15.4	114.2	17.9	197.1	15.8	24.4
Cumberland	89.2	11.2	9.8	110.2	30.6	111.3	-9.3	30.6
Digby	78.2	0.0	4.5	82.7	-5.1	0.0	-4.3	-5.1
Guysborough	65.2	0.2	0.0	65.4	16.6	-66.7	0.0	15.8
Halifax	89.2	67.6	44.8	201.6	33.3	59.8	28.4	39.9
Hants	72.8	4.4	4.4	81.5	-2.8	131.6	-27.9	-1.7
Inverness	64.2	0.0	12.7	76.9	-3.6	0.0	14.4	-1.2
Kings	84.8	28.4	28.9	142.1	4.3	129.0	51.3	26.0
Lunenburg	84.6	12.3	10.3	107.3	21.7	284.4	19.8	32.0
Pictou	84.4	14.9	13.7	113.0	12.1	75.3	-0.7	15.9
Queens	63.5	13.7	7.6	84.8	28.0	153.7	85.4	43.2
Richmond	74.4	0.0	0.0	74.4	115.7	0.0	0.0	115.7
Shelburne	72.6	0.0	6.8	79.4	27.4	0.0	36.0	27.9
Victoria	78.1	1.7	0.2	80.0	41.0	0.0	0.0	44.4
Yarmouth	88.4	23.7	22.8	134.8	4.9	50.0	-1.7	9.3
Nova Scotia	83.5	32.3	26.1	141.9	22.1	76.5	25.5	32.0

Source: Maritime Medical Care Inc.

TABLE 12
PHYSICIANS AND FTE'S, 1977-78, BY COUNTY

	--- GP's ---		- Medical -		- Surgical -		-- Total --	
	PHYS	FTE	PHYS	FTE	PHYS	FTE	PHYS	FTE
Annapolis	20	13.7	2	0.9	3	1.3	25	15.8
Antigonish	19	14.9	4	1.4	5	4.5	28	20.8
Cape Breton	84	81.1	15	13.0	33	29.3	132	123.4
Colchester	31	31.5	3	1.5	8	5.6	42	38.5
Cumberland	30	24.8	3	1.9	6	3.9	39	30.6
Digby	19	17.4	0	0.0	2	1.0	21	18.4
Guysborough	10	7.2	1	0.1	0	0.0	11	7.3
Halifax	286	182.2	173	115.3	123	95.2	582	392.7
Hants	26	24.5	1	0.6	2	2.0	29	27.1
Inverness	16	14.7	0	0.0	4	2.4	20	17.1
Kings	41	37.9	8	5.8	12	8.9	61	52.5
Lunenburg	35	29.7	3	1.4	11	3.7	49	34.7
Pictou	40	37.3	6	4.2	8	6.8	54	48.4
Queens	6	6.5	2	0.7	1	0.5	9	7.7
Richmond	3	4.3	0	0.0	0	0.0	3	4.3
Shelburne	13	9.6	0	0.0	1	0.8	14	10.5
Victoria	6	4.7	0	0.0	0	0.0	6	4.7
Yarmouth	22	21.4	7	4.0	6	5.9	35	31.4
Nova Scotia	707	563.6	228	150.8	225	171.8	1160	886.2

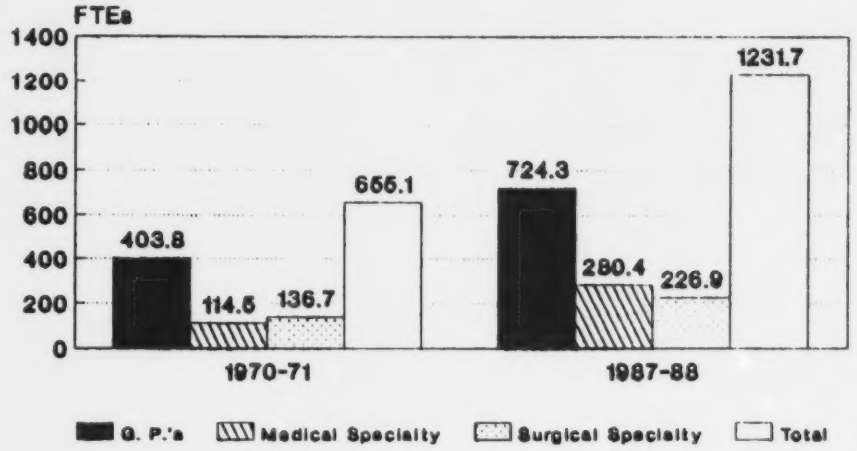
Source: Maritime Medical Care Inc.

TABLE 13
PHYSICIANS AND FTE'S, 1987-88, BY COUNTY

	--- GP's ---		- Medical -		- Surgical -		-- Total --	
	PHYS	FTE	PHYS	FTE	PHYS	FTE	PHYS	FTE
Annapolis	21	14.2	2	1.1	4	2.9	27	18.1
Antigonish	22	17.1	7	3.4	8	7.8	37	28.3
Cape Breton	104	98.9	28	24.7	29	29.4	161	153.0
Colchester	43	40.0	6	4.7	7	7.0	56	51.7
Cumberland	36	31.0	5	3.9	4	3.4	45	38.2
Digby	20	17.1	0	0.0	2	1.0	22	18.1
Guysborough	14	8.3	1	0.0	0	0.0	15	8.3
Halifax	423	270.0	298	204.6	152	135.7	873	610.3
Hants	33	27.3	3	1.6	3	1.6	39	30.6
Inverness	13	14.1	0	0.0	3	2.8	16	16.8
Kings	55	44.4	19	14.9	17	15.1	91	74.4
Lunenburg	49	39.3	8	5.7	5	4.8	62	49.9
Pictou	45	42.1	9	7.4	10	6.9	64	56.4
Queens	8	8.3	4	1.8	1	1.0	13	11.1
Richmond	8	8.7	0	0.0	0	0.0	8	8.7
Shelburne	15	12.6	0	0.0	1	1.2	16	13.7
Victoria	6	6.9	2	0.1	1	0.0	9	7.0
Yarmouth	30	24.1	9	6.5	6	6.2	45	36.8
Nova Scotia	945	724.3	401	280.4	253	226.9	1599	1231.7

Source: Maritime Medical Care Inc.

FIGURE 1: FULL TIME EQUIVALENT PHYSICIANS, BY TYPE OF PHYSICIAN 1970-71 AND 1987-88



Source: Maritime Medical Care Inc.

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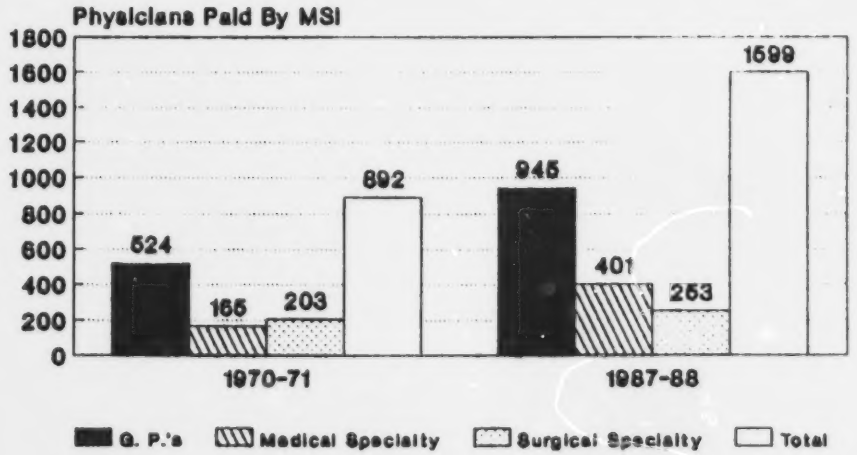
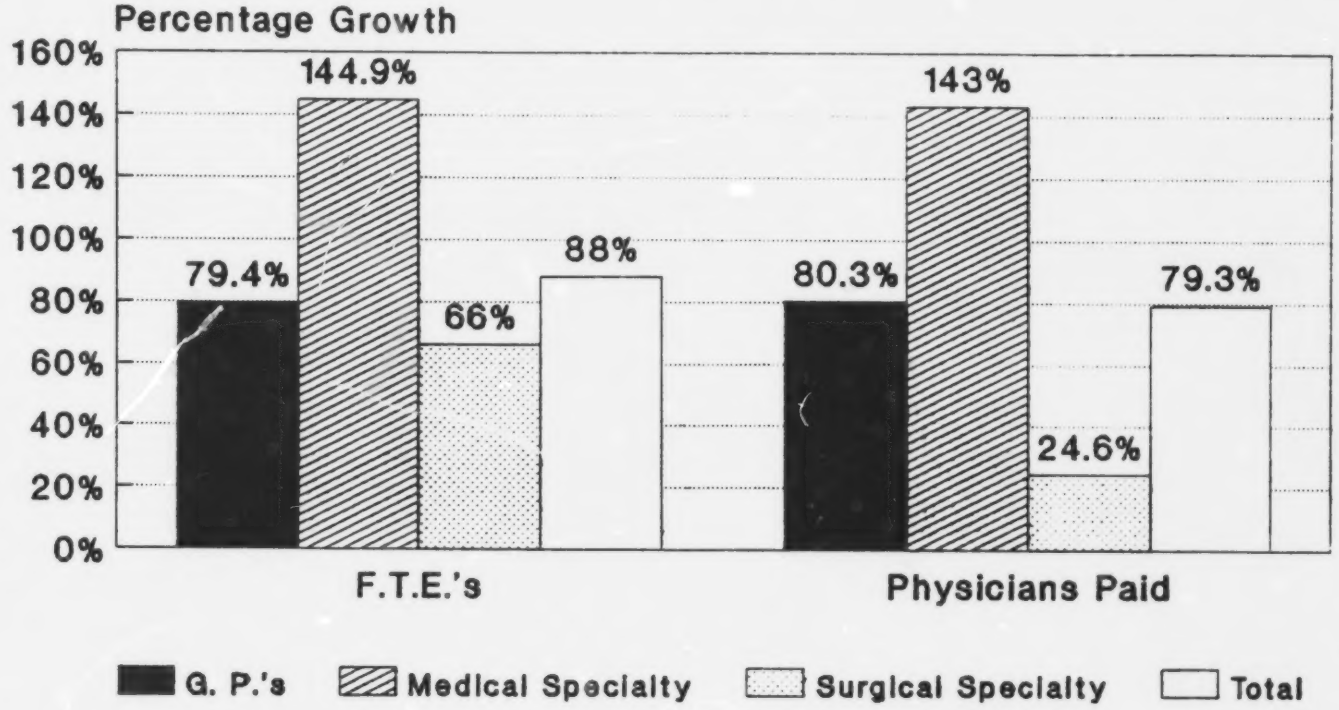
FIGURE 2: NUMBER OF FEE-FOR-SERVICE PHYSICIANS, BY TYPE OF PHYSICIAN 1970-71 AND 1987-88



Source: Maritime Medical Care Inc.

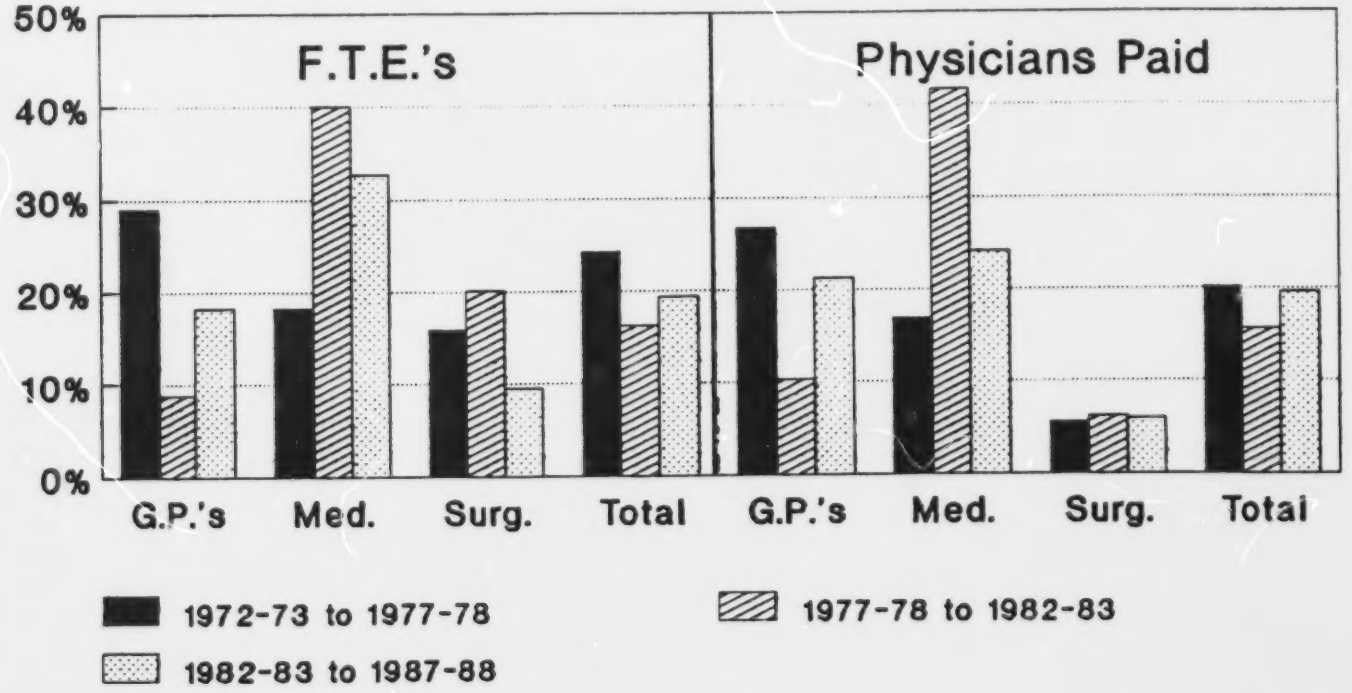
83

FIGURE 3: RATES OF GROWTH IN FEE-FOR-SERVICE PHYSICIANS AND F.T.E.s BY TYPE OF PHYSICIAN, 1970-71 TO 1987-88



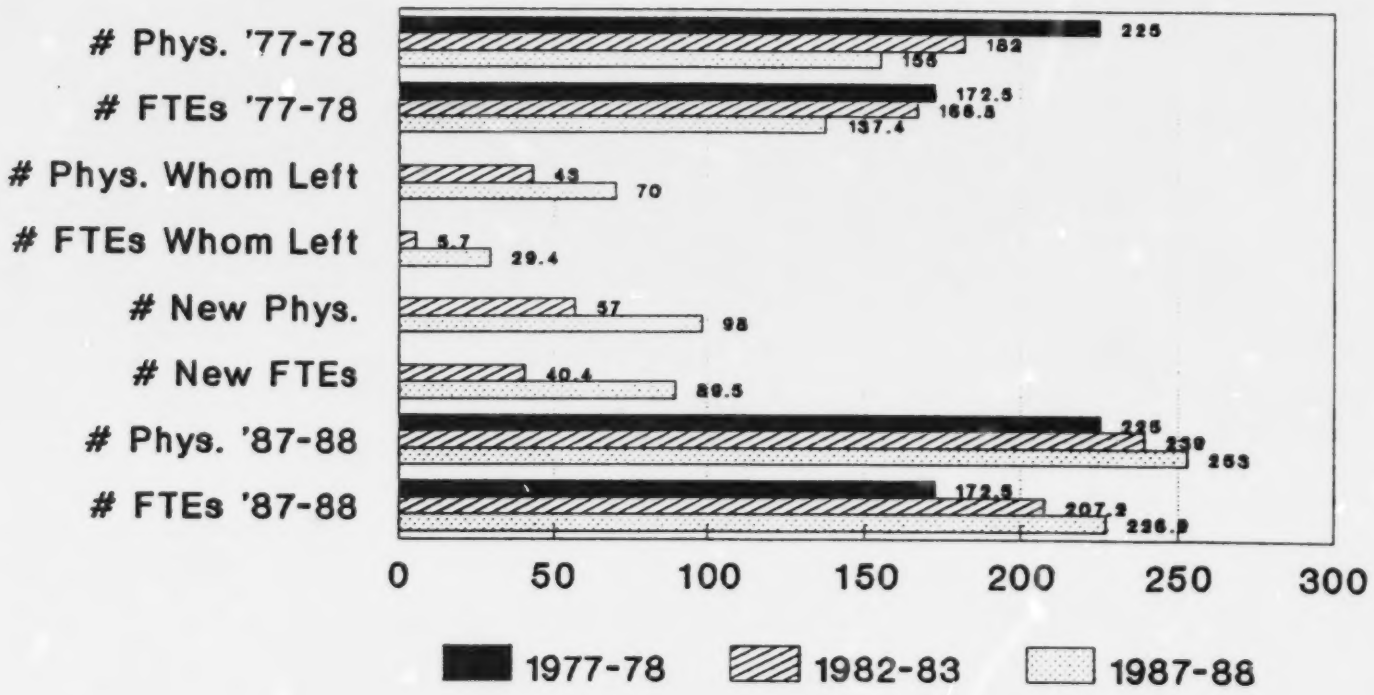
Source: Maritime Medical Care Inc.

FIGURE 4: FIVE YEAR GROWTH RATES IN FEE-FOR-SERVICE PHYSICIANS AND F.T.E.s 1972-73 TO 1987-88



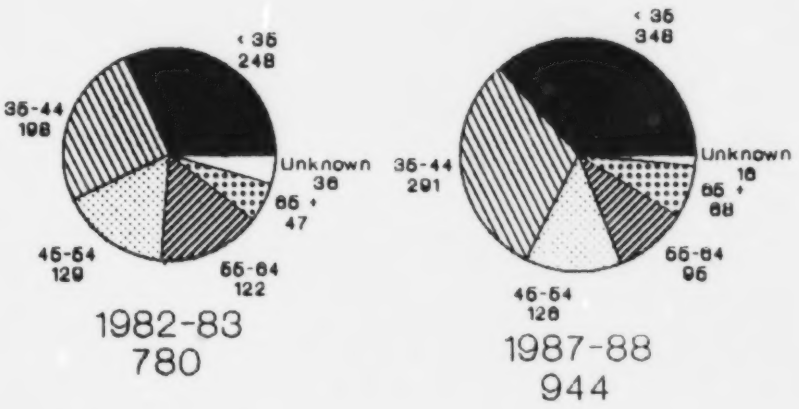
Source: Maritime Medical Care Inc.

FIGURE 5: SURGICAL SPECIALISTS AND F.T.E.s, ATTRITION AND GROWTH 1977-78 TO 1987-88



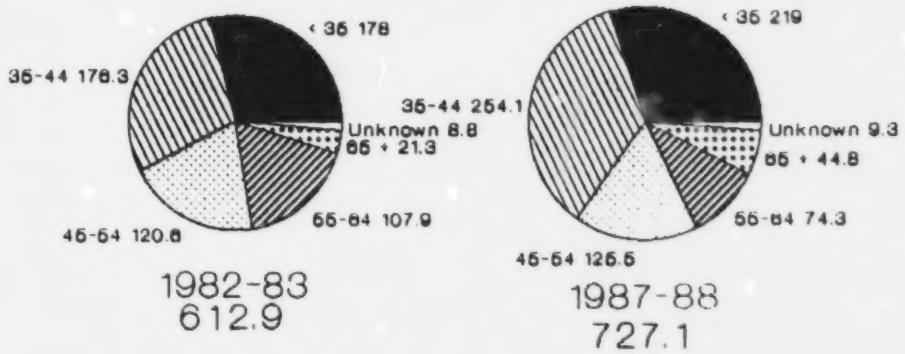
Source: Maritime Medical Care Inc.

FIGURE 6: DISTRIBUTION OF PHYSICIANS BY AGE, GENERAL PRACTITIONERS 1982-83 AND 1987-88



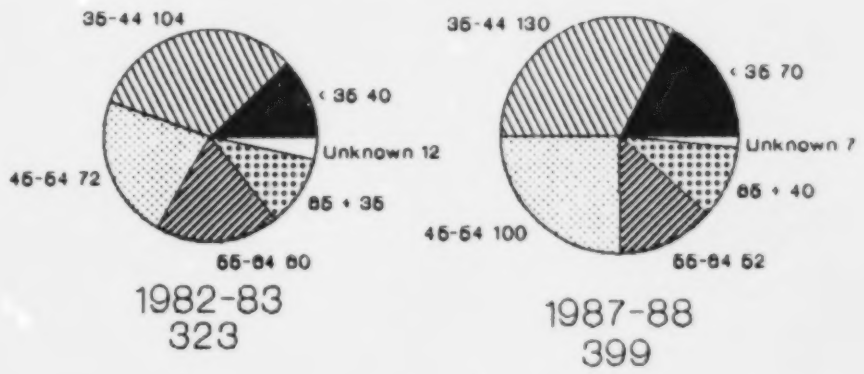
Source: Maritime Medical Care Inc.

FIGURE 7: DISTRIBUTION OF F.T.E.s BY AGE, GENERAL PRACTITIONERS 1982-83 AND 1987-88



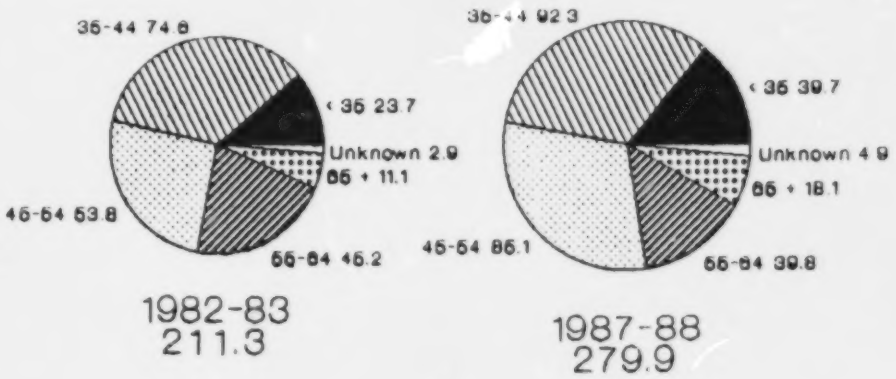
Source: Maritime Medical Care Inc.

FIGURE 8: DISTRIBUTION OF PHSYICIANS BY AGE, MEDICAL SPECIALISTS 1982-83 AND 1987-88



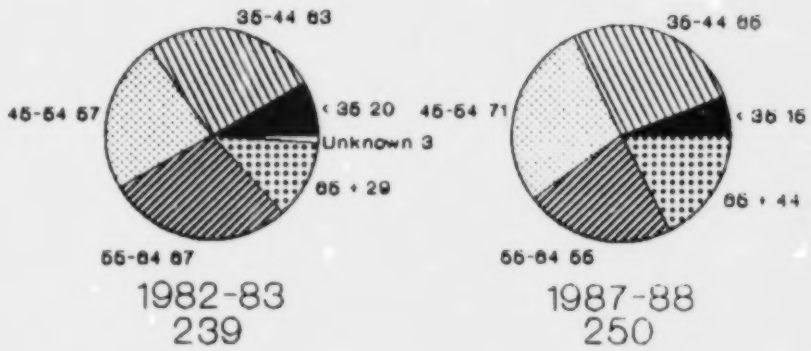
Source: Maritime Medical Care Inc.

FIGURE 9: DISTRIBUTION OF F.T.E.s BY AGE, MEDICAL SPECIALISTS 1982-83 AND 1987-88



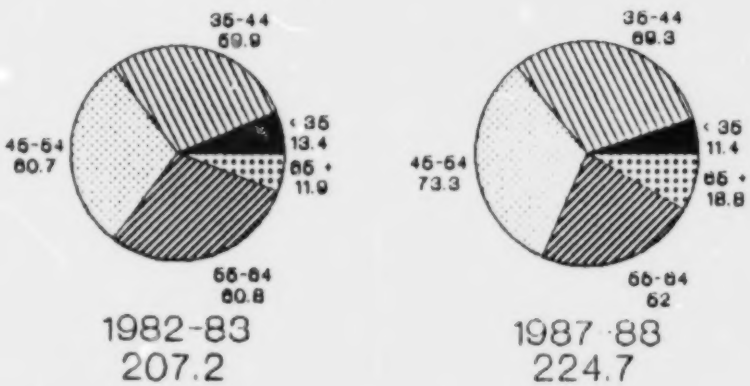
Source: Maritime Medical Care Inc.

FIGURE 10 DISTRIBUTION OF PHYSICIANS BY AGE, SURGICAL SPECIALISTS 1982-83 AND 1987-88



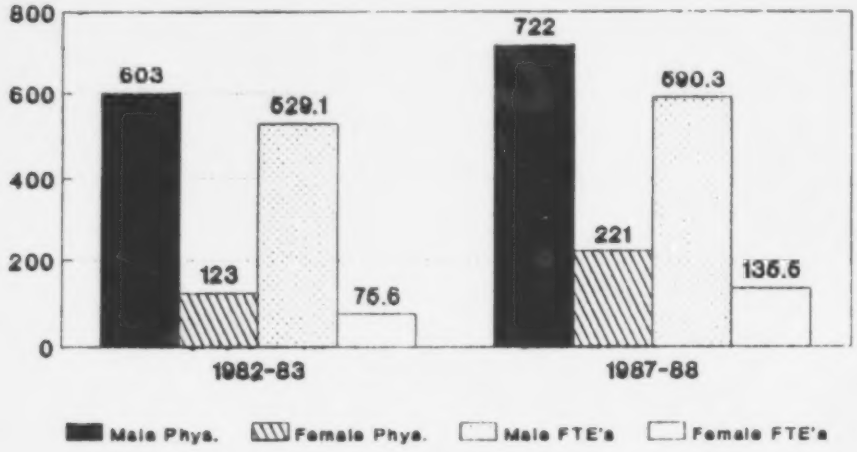
Source: Maritime Medical Care Inc.

FIGURE 11 DISTRIBUTION OF F.T.E.s BY AGE, SURGICAL SPECIALISTS 1982-83 AND 1987-88



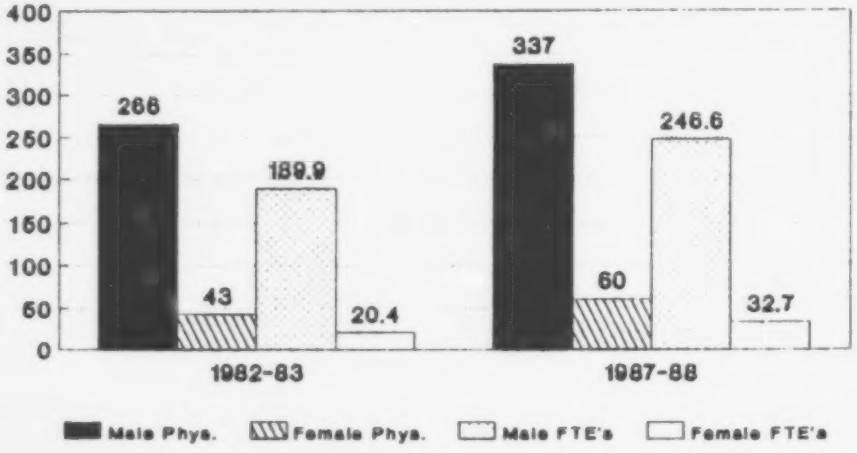
Source: Maritime Medical Care Inc.

FIGURE 12: DISTRIBUTION OF PHYSICIANS AND FTEs, BY SEX, GENERAL PRACTITIONERS 1982-83 AND 1987-88



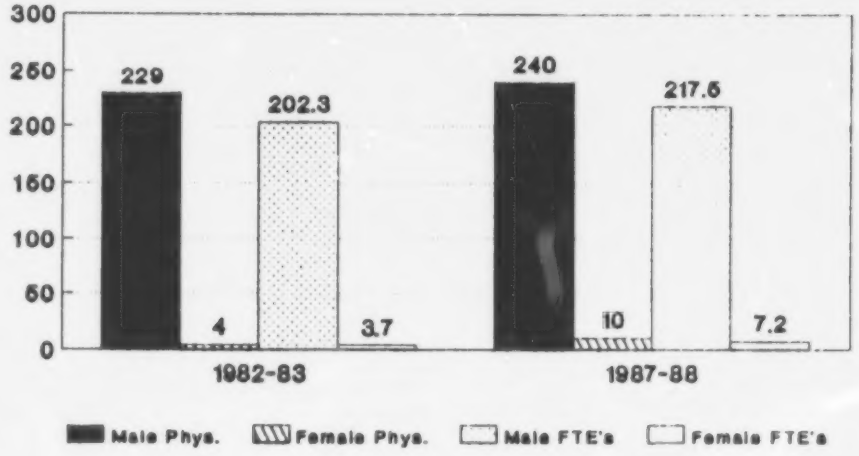
Source: Maritime Medical Care Inc

FIGURE 13: DISTRIBUTION OF PHYSICIANS AND FTEs, BY SEX, MEDICAL SPEICIALISTS 1982-83 AND 1987-88



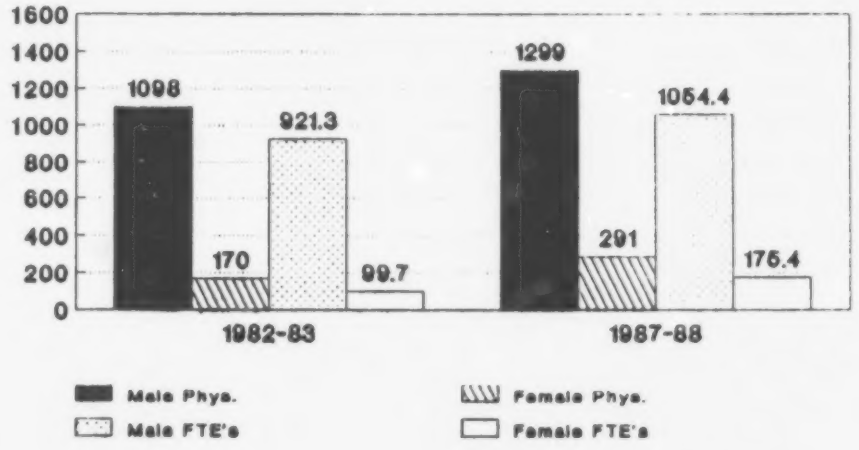
Source: Maritime Medical Care Inc.

FIGURE 14: DISTRIBUTION OF PHYSICIANS AND FTEs, BY SEX, SURGICAL SPECIALISTS 1982-83 AND 1987-88



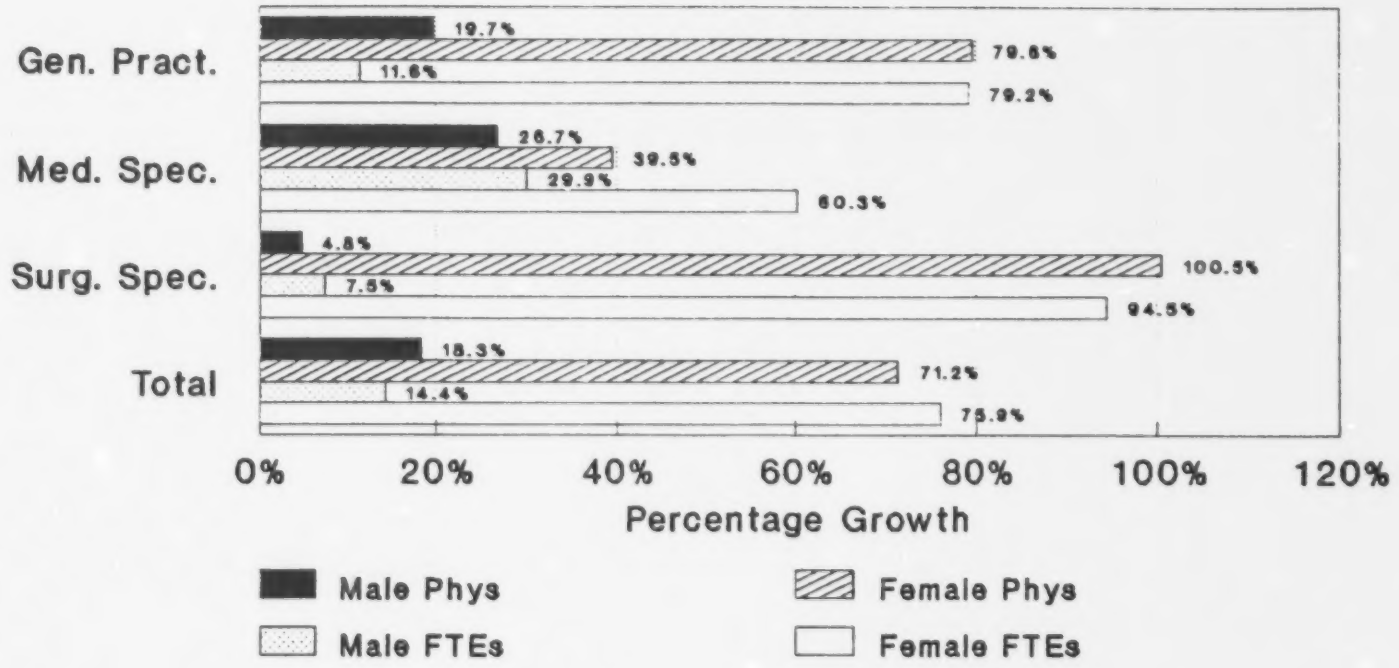
Source: Maritime Medical Care Inc.

FIGURE 15: DISTRIBUTION OF PHYSICIANS AND FTEs, BY SEX, ALL PHYSICIANS 1982-83 AND 1987-88



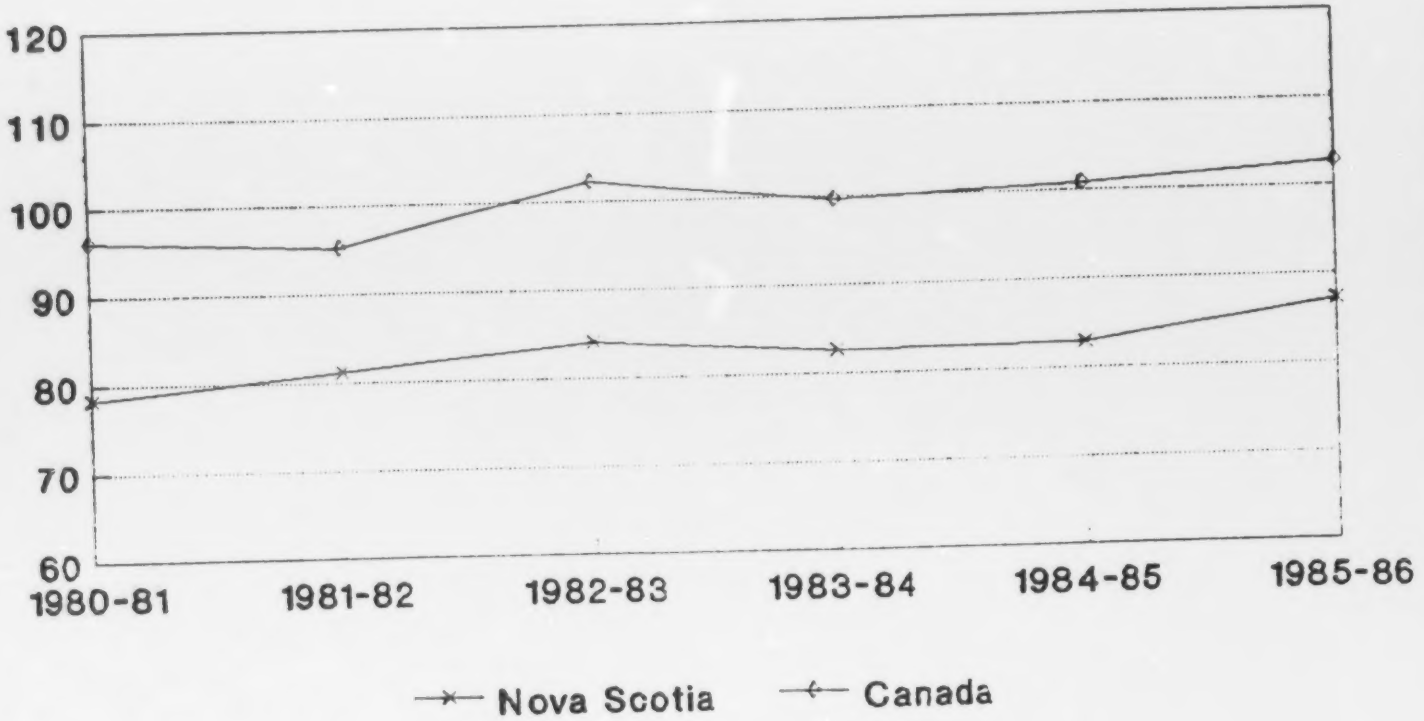
Source: Maritime Medical Care Inc

FIGURE 16: GROWTH OF PHYSICIANS AND FTEs BY SEX AND BY TYPE OF PHYSICIAN 1982-83 TO 1987-88



Source: Maritime Medical Care Inc.

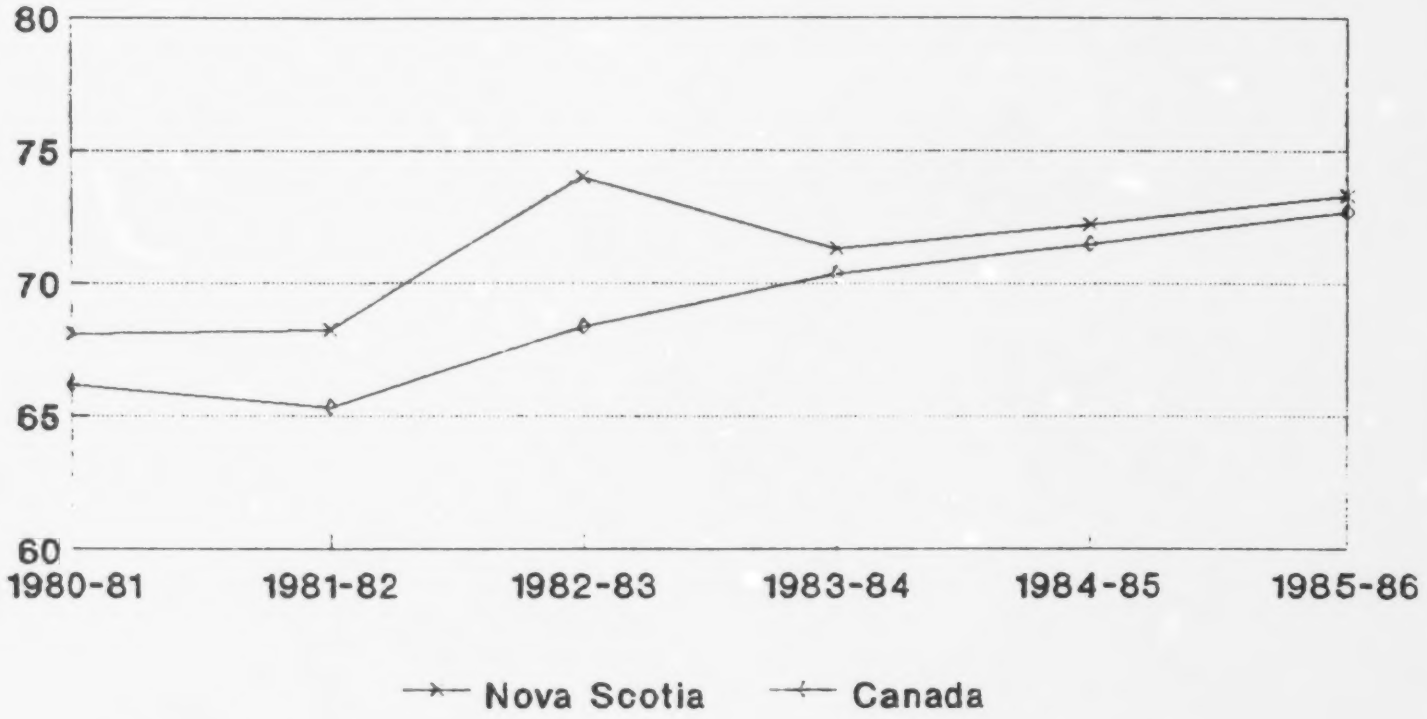
FIGURE 12: PHYSICIAN SERVICES, MINOR SURGERY PER 1,000 POPULATION NOVA SCOTIA & CANADA, 1980-81 TO 1985-86



Source: Health and Welfare

CS

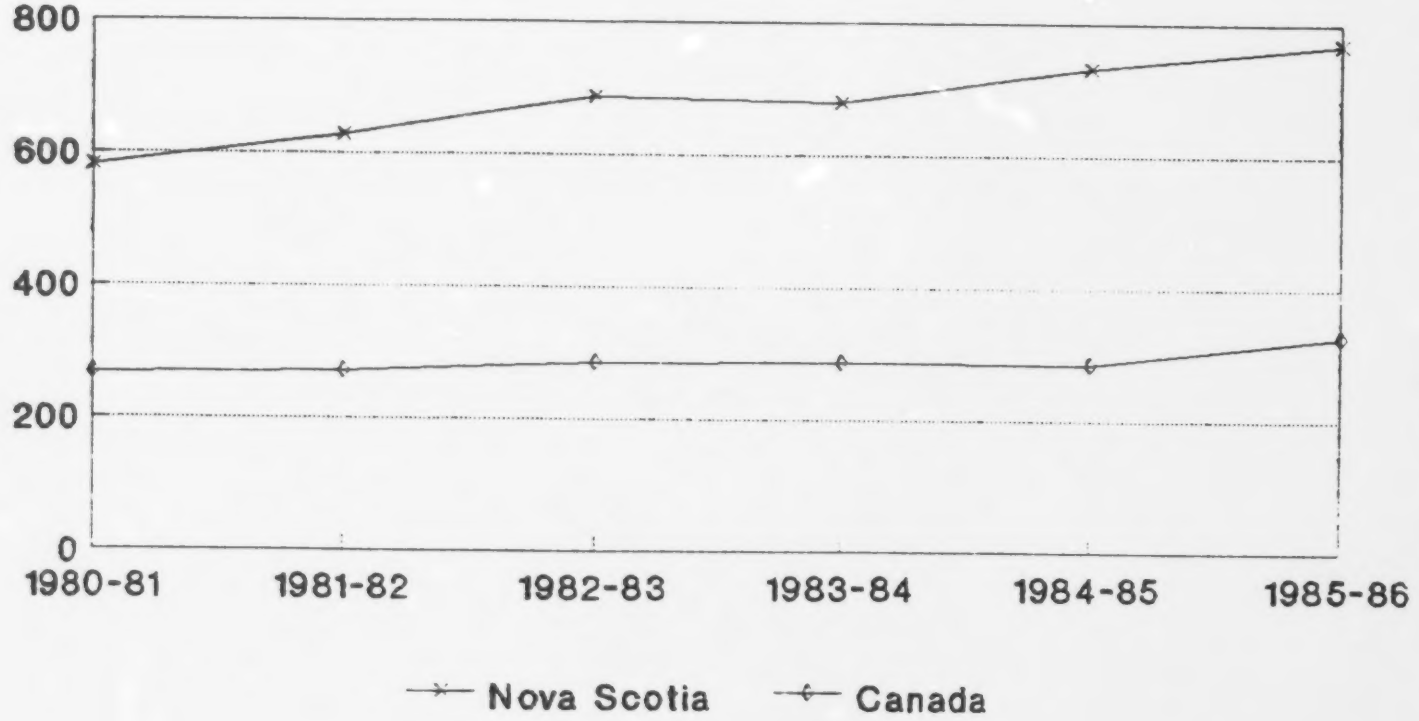
FIGURE 18: PHYSICIAN SERVICES, MAJOR SURGERY PER 1,000 POPULATION NOVA SCOTIA & CANADA, 1980-81 TO 1985-86



Source: Health and Welfare

C5

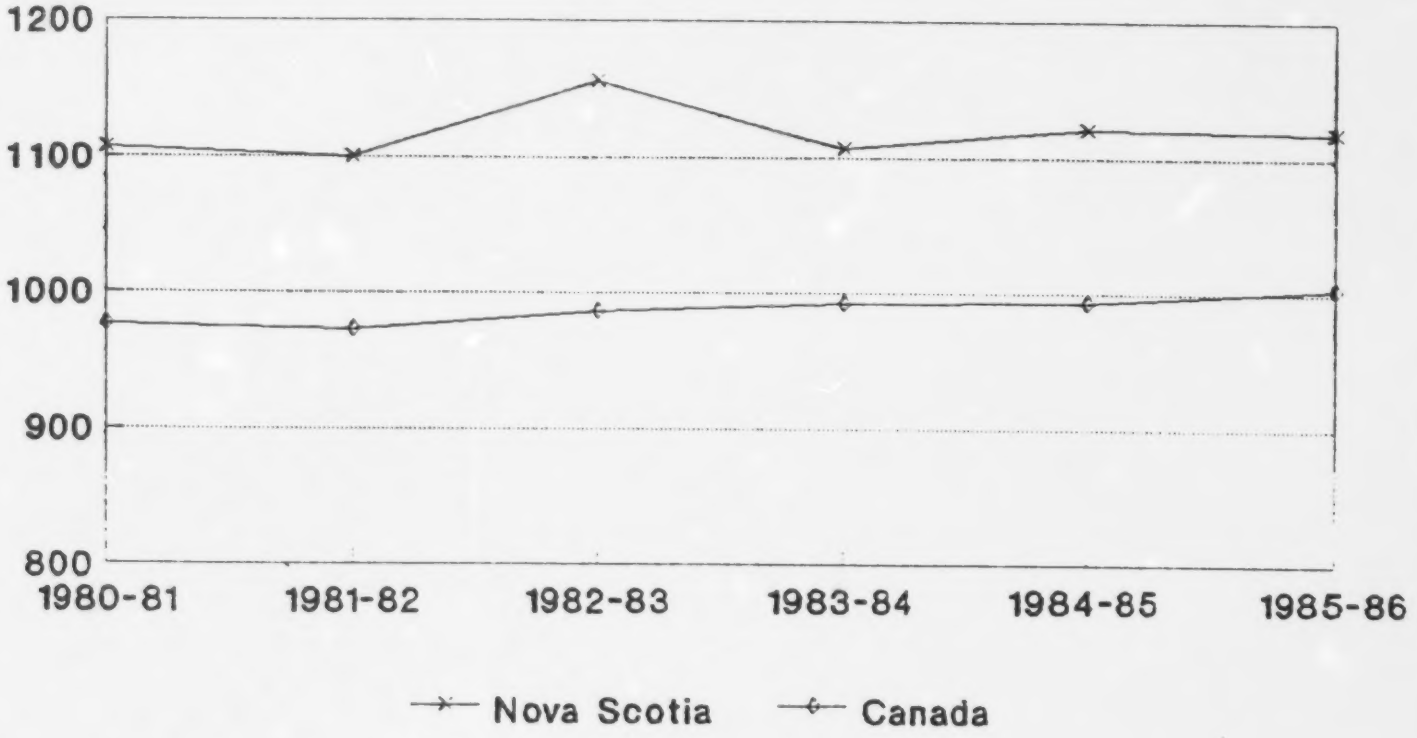
FIGURE 19: PHYSICIAN HOME/EMERGENCY VISITS PER 1,000 POPULATION NOVA SCOTIA & CANADA, 1980-81 TO 1985-86



Source: Health and Welfare

C4

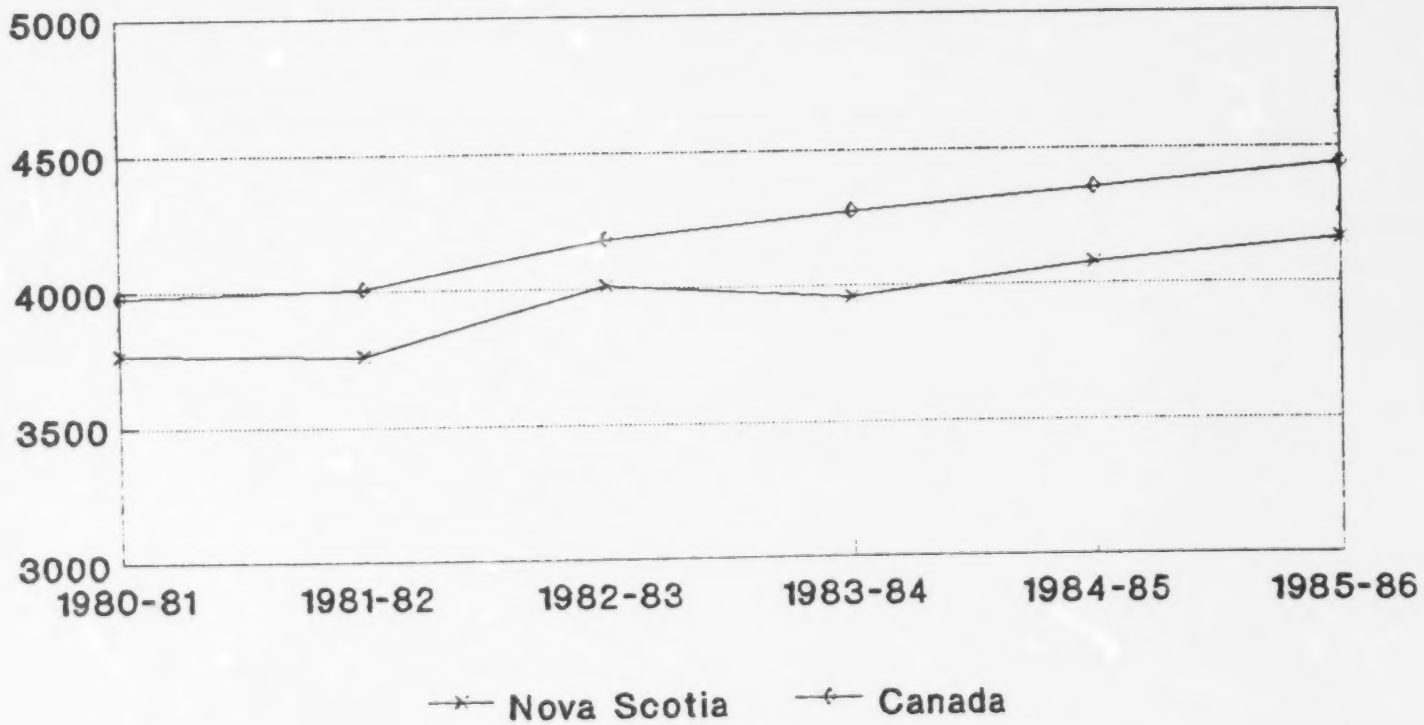
FIGURE 20: PHYSICIAN HOSPITAL VISITS PER 1,000 POPULATION, NOVA SCOTIA AND CANADA 1980-81 TO 1985-86



Source: Health and Welfare

cs

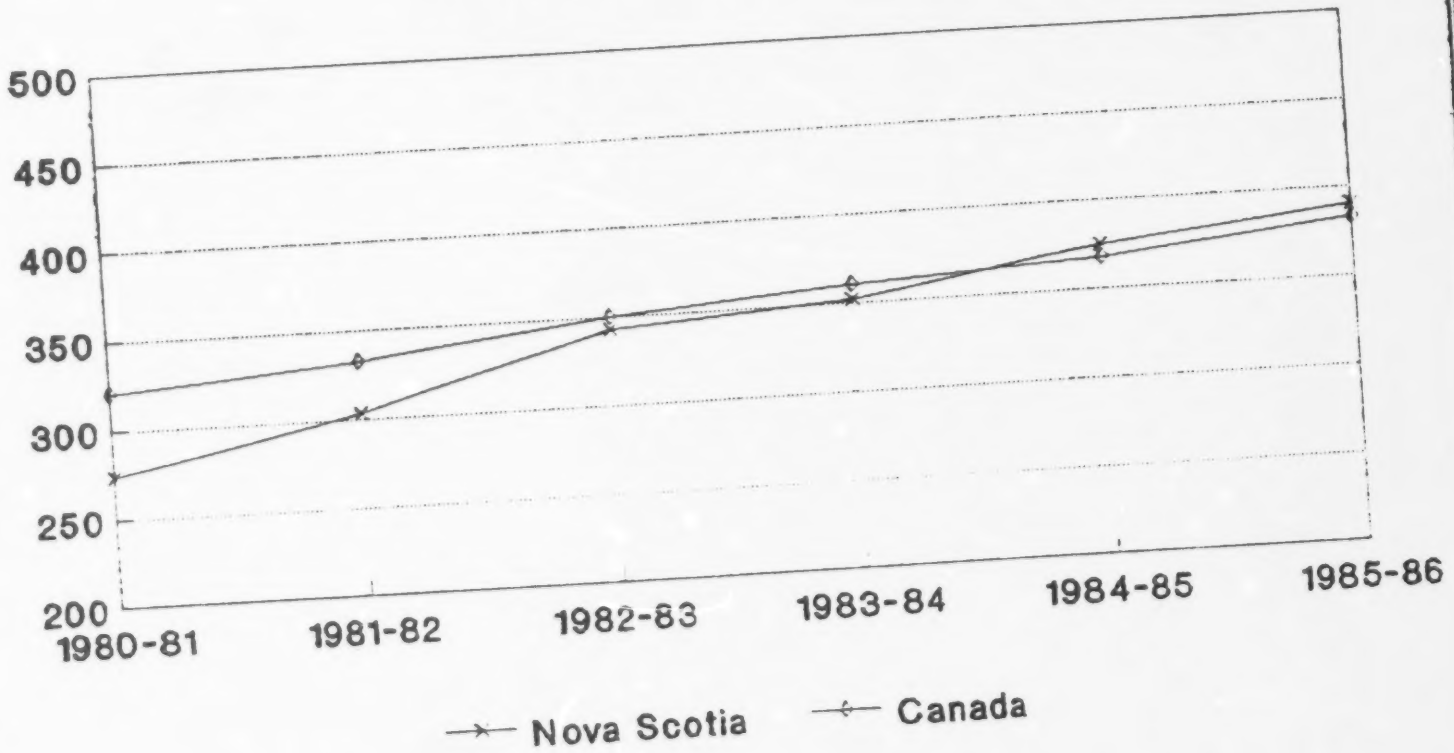
FIGURE 21: PHYSICIAN OFFICE VISITS PER 1,000 POPULATION, NOVA SCOTIA AND CANADA 1980-81 TO 1985-86



Source: Health and Welfare

C2

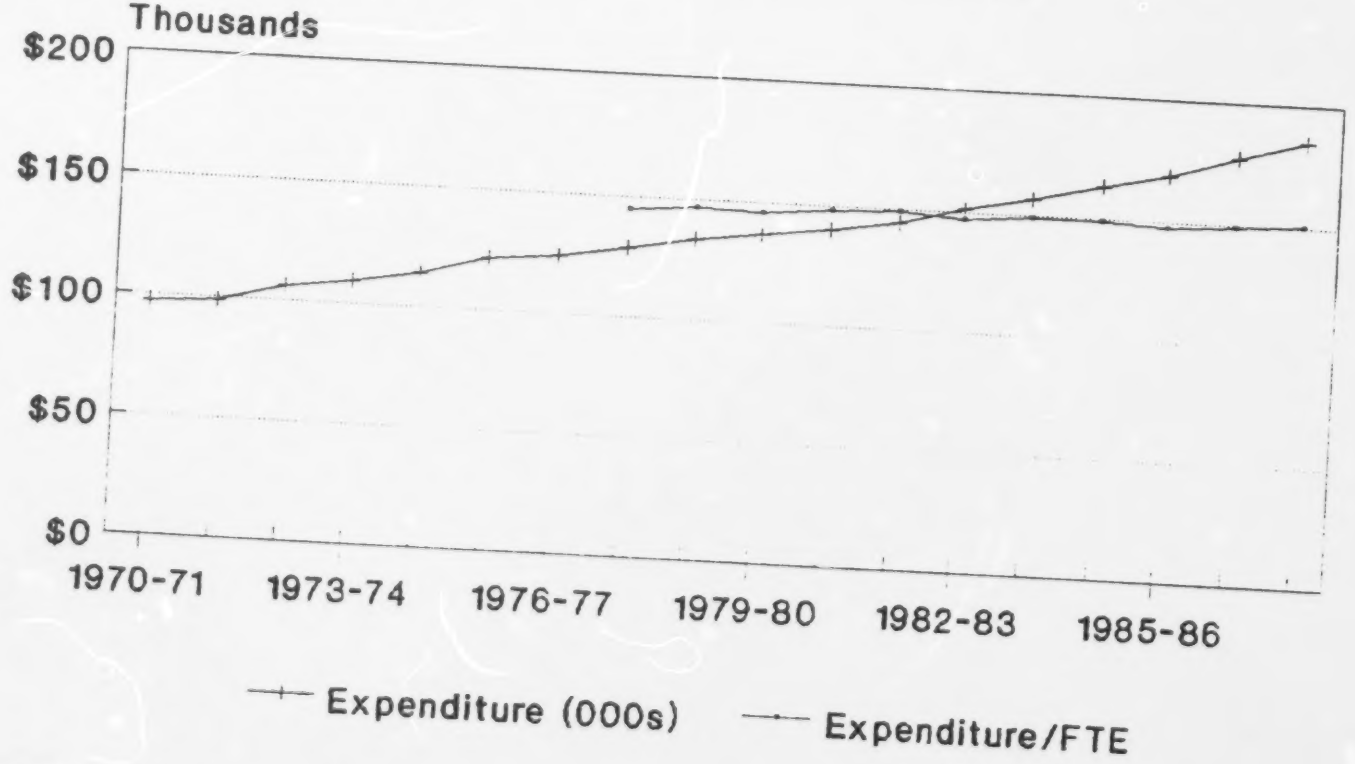
FIGURE 22: PHYSICIAN CONSULTATIONS PER 1,000 POPULATION, NOVA SCOTIA AND CANADA 1980-81 TO 1985-86



Source: Health and Welfare

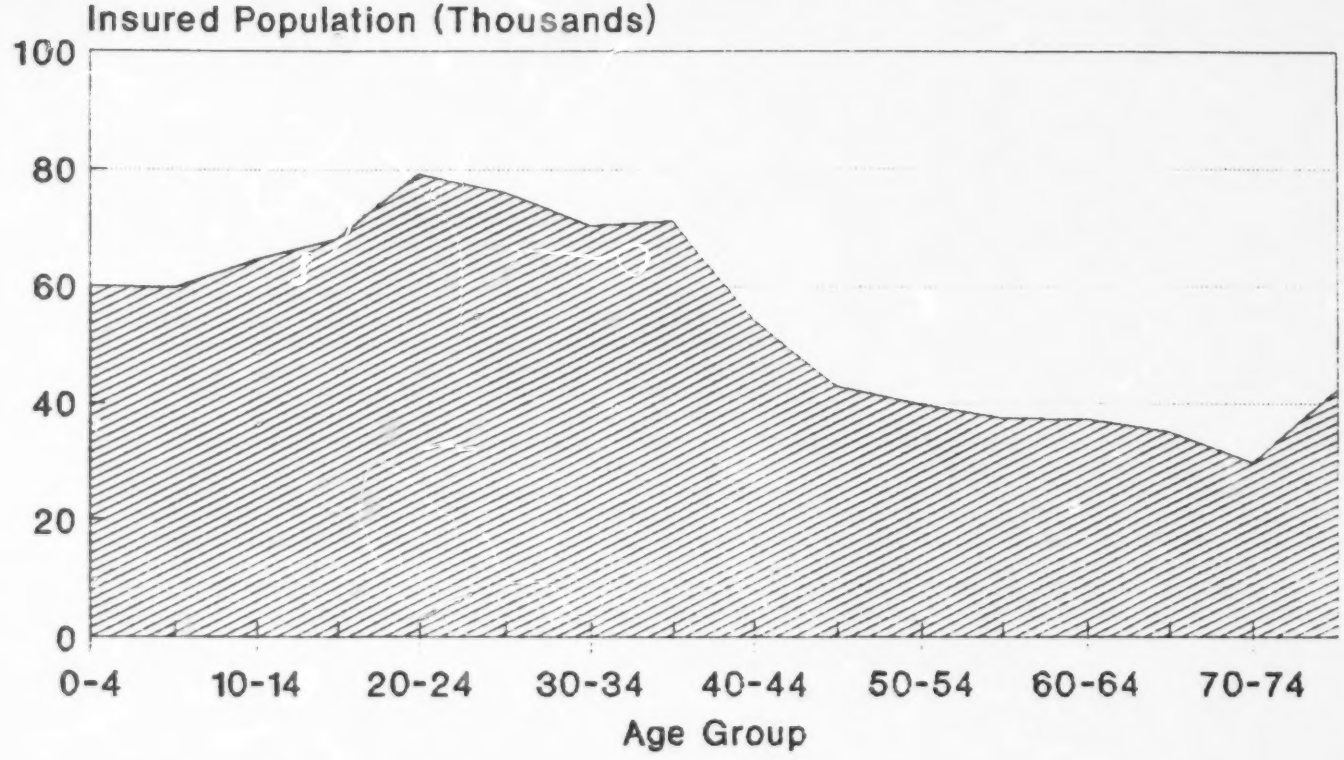
C1

FIGURE 23: NOVA SCOTIA M.S.I. CONSTANT $ EXPENDITURE PER FTE IN 1987-88 DOLLARS



Source: Maritime Medical Care Inc.

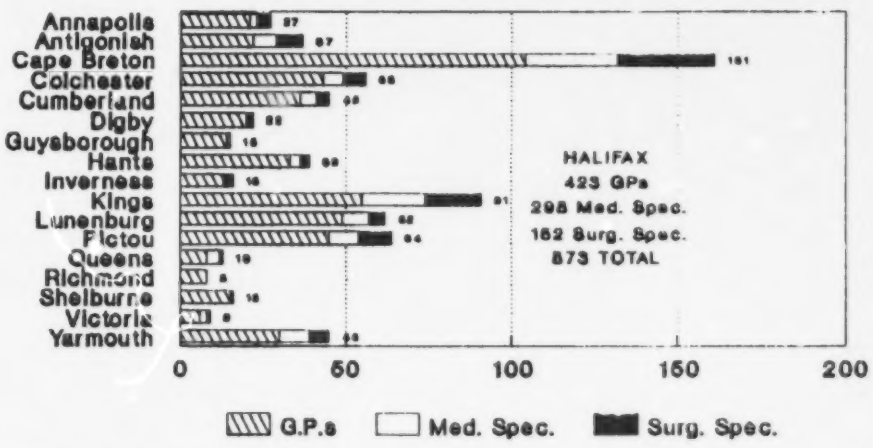
FIGURE 24: NOVA SCOTIA INSURED POPULATION, BY AGE GROUP 1987-88



Source: Maritime Medical Care Inc.

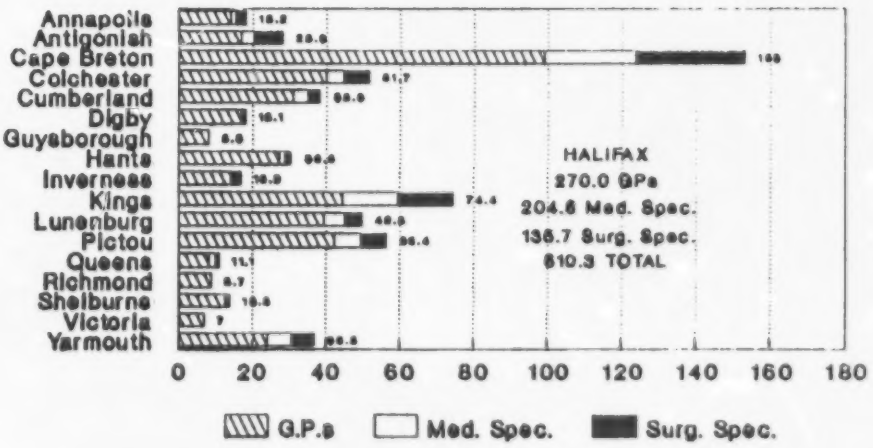
U12

FIGURE 30: NUMBER OF PHYSICIANS BY COUNTY AND BY TYPE OF PHYSICIAN 1987-88



Source: Maritime Medical Care Inc.

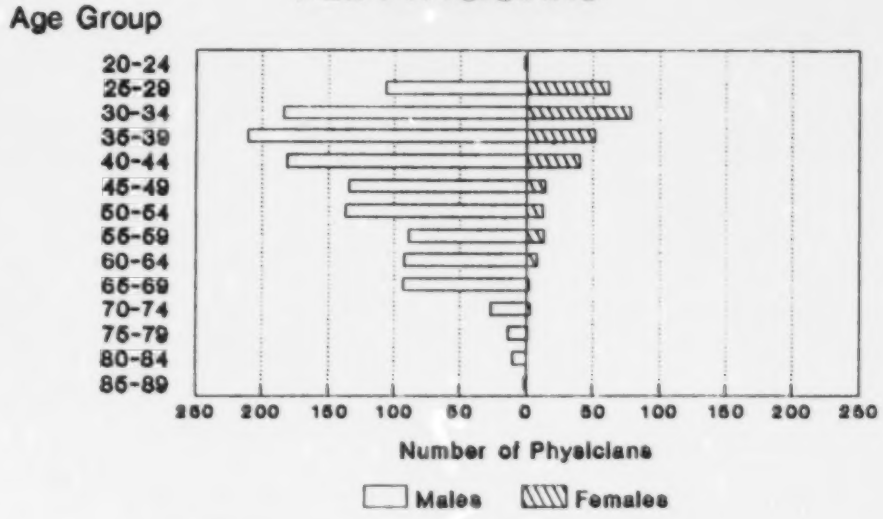
FIGURE 31: NUMBER OF FTEs BY COUNTY AND BY TYPE OF PHYSICIAN 1987-88



Source: Maritime Medical Care Inc.

FIGURE 32

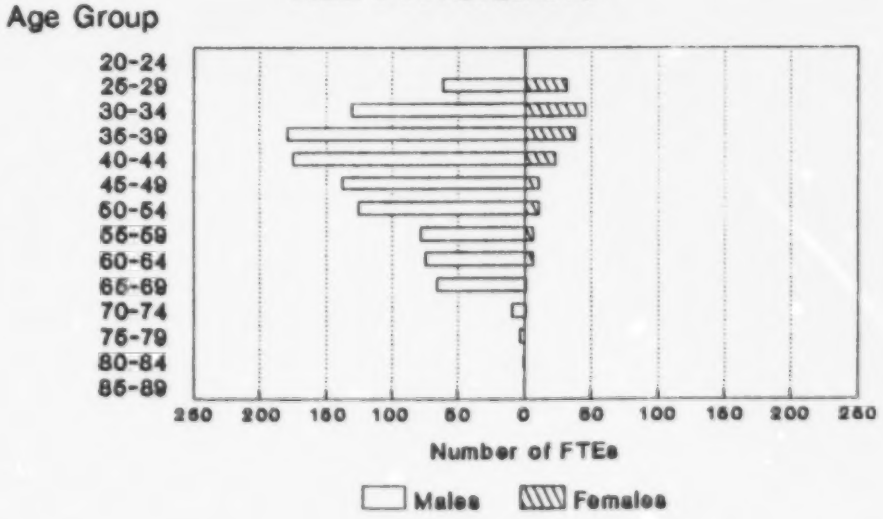
FEE-FOR-SERVICE PHYSICIANS, 1987-88
ALL PHYSICIANS



Excludes those physicians whose age or sex is unknown.

FIGURE 33

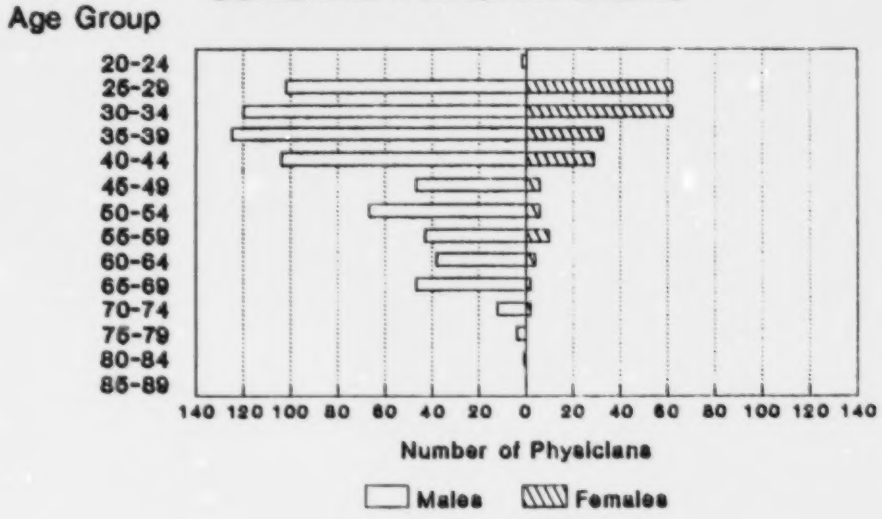
FEE-FOR-SERVICE F.T.E.s, 1987-88
ALL PHYSICIANS



Excludes those physicians whose age or sex is unknown.

FIGURE 34

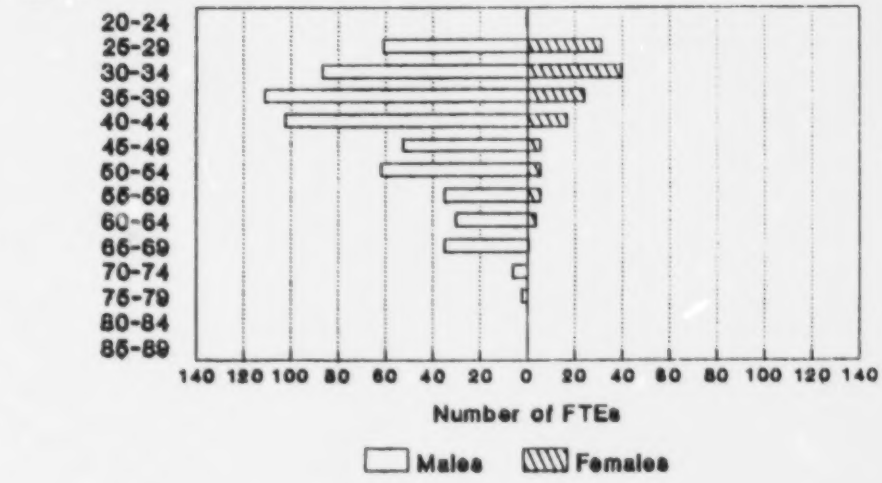
FEE-FOR-SERVICE PHYSICIANS, 1987-88
GENERAL PRACTITIONERS



Excludes those physicians whose age or sex is unknown.

FIGURE 35

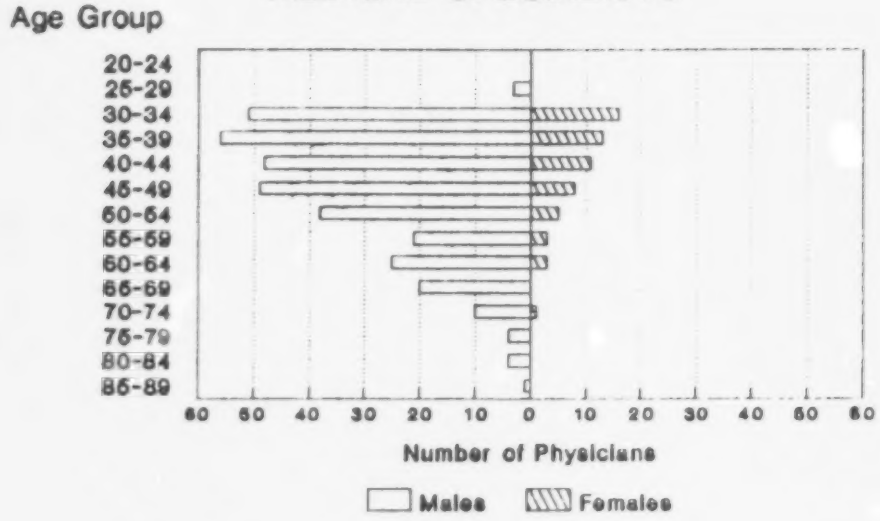
FEE-FOR-SERVICE F.T.E.s, 1987-88
GENERAL PRACTITIONERS



Excludes those physicians whose age or sex is unknown.

FIGURE 36

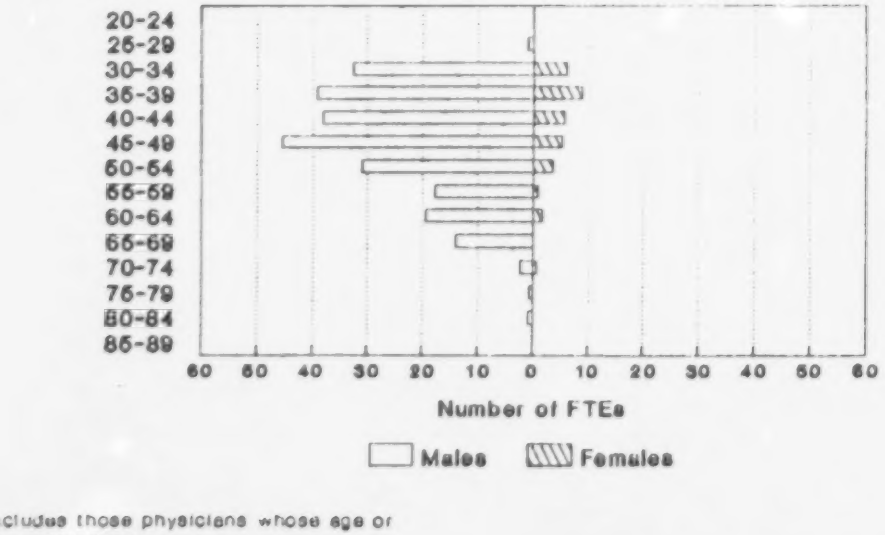
FEE-FOR-SERVICE PHYSICIANS, 1987-88
MEDICAL SPECIALISTS



Excludes those physicians whose age or sex is unknown.

FIGURE 37

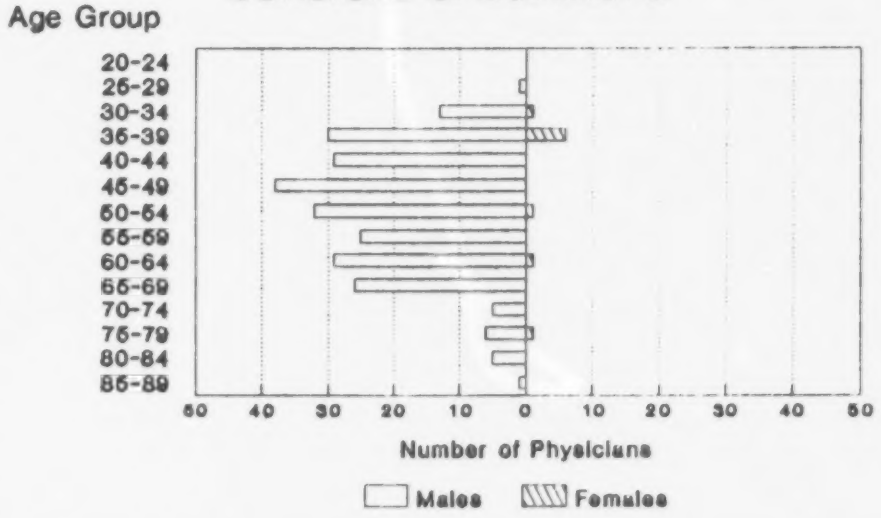
FEE-FOR-SERVICE F.T.E.s, 1987-88
MEDICAL SPECIALISTS



Excludes those physicians whose age or sex is unknown.

FIGURE 38

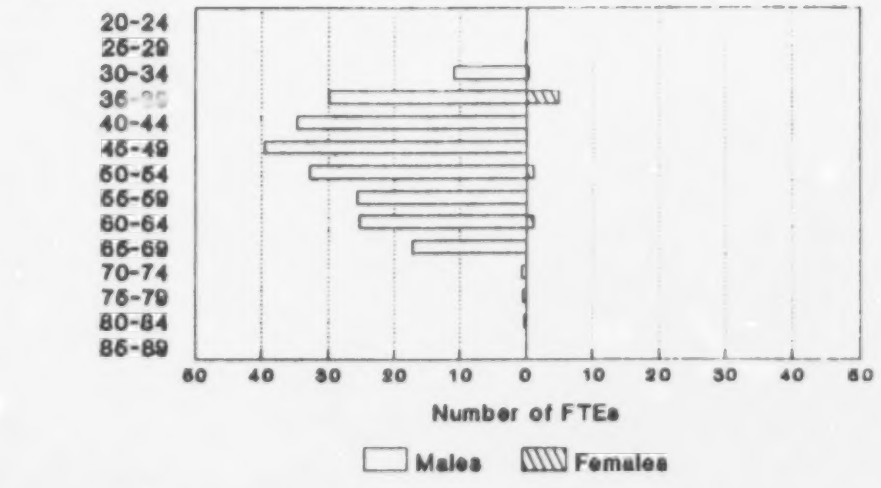
FEE-FOR-SERVICE PHYSICIANS, 1987-88
SURGICAL SPECIALISTS



Excludes those physicians whose age or sex is unknown.

FIGURE 39

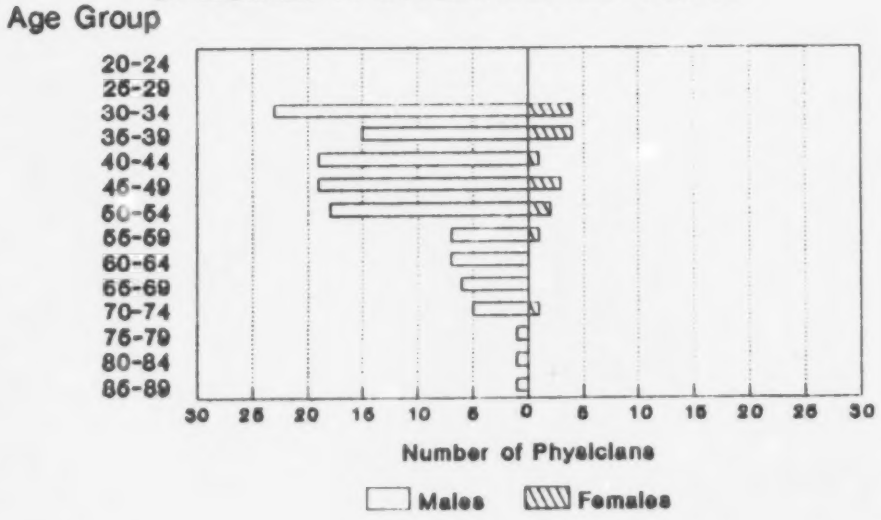
FEE-FOR-SERVICE F.T.E.s, 1987-88
SURGICAL SPECIALISTS



Excludes those physicians whose age or sex is unknown.

FIGURE 40

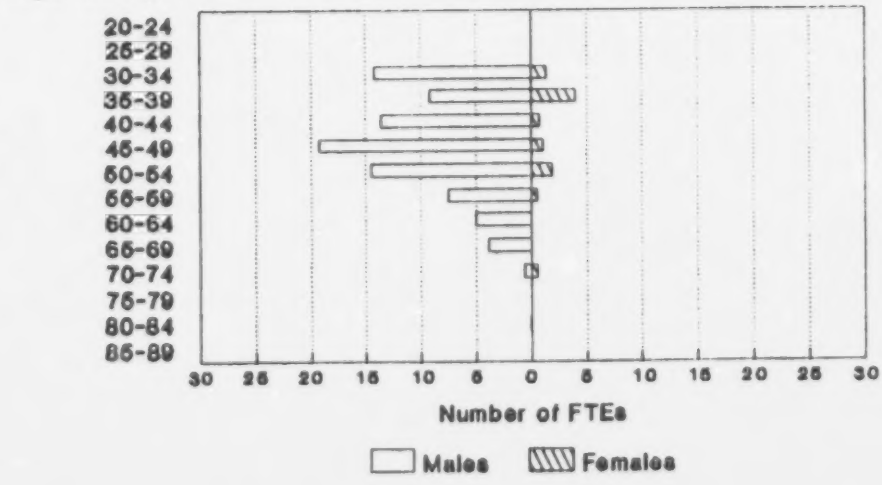
FEE-FOR-SERVICE PHYSICIANS, 1987-88
SPECIALTY: INTERNAL MEDICINE



Excludes those physicians whose age or sex is unknown.

FIGURE 41

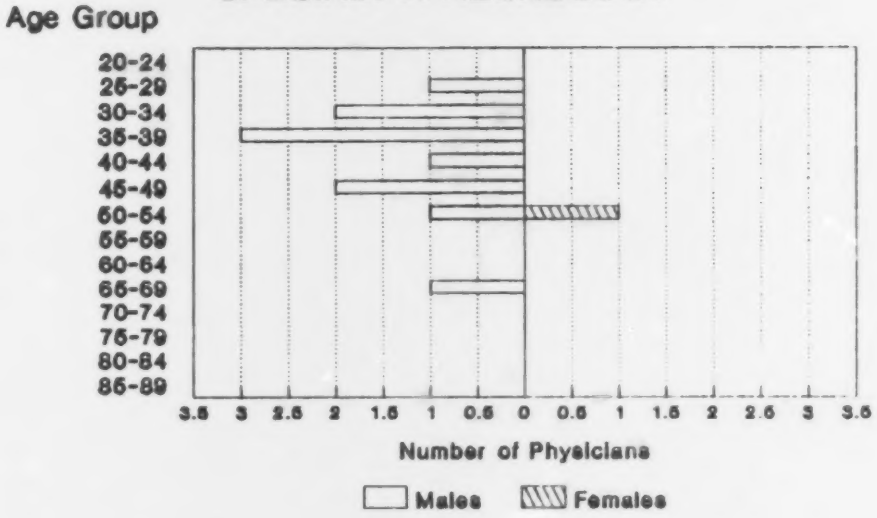
FEE-FOR-SERVICE F.T.E.s, 1987-88
SPECIALTY: INTERNAL MEDICINE



Excludes those physicians whose age or sex is unknown.

FIGURE 42

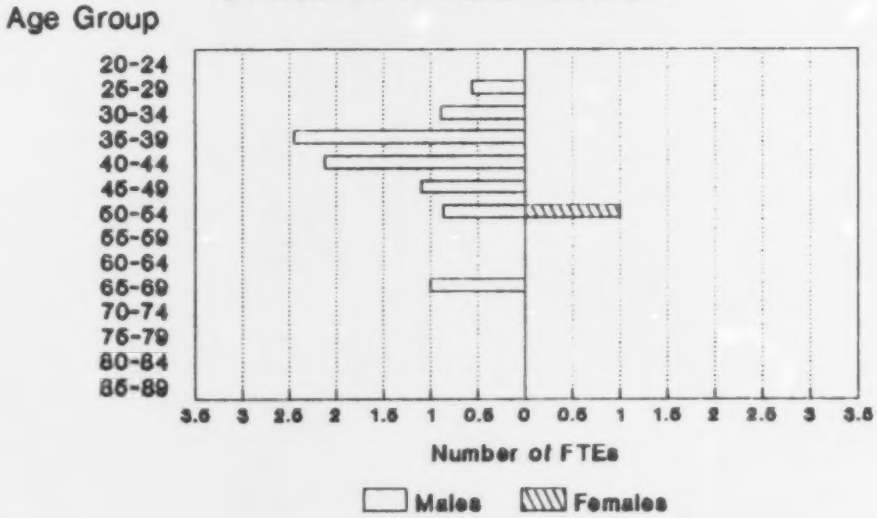
FEE-FOR-SERVICE PHYSICIANS, 1987-88
SPECIALTY: NEUROLOGY



Excludes those physicians whose age or sex is unknown.

FIGURE 43

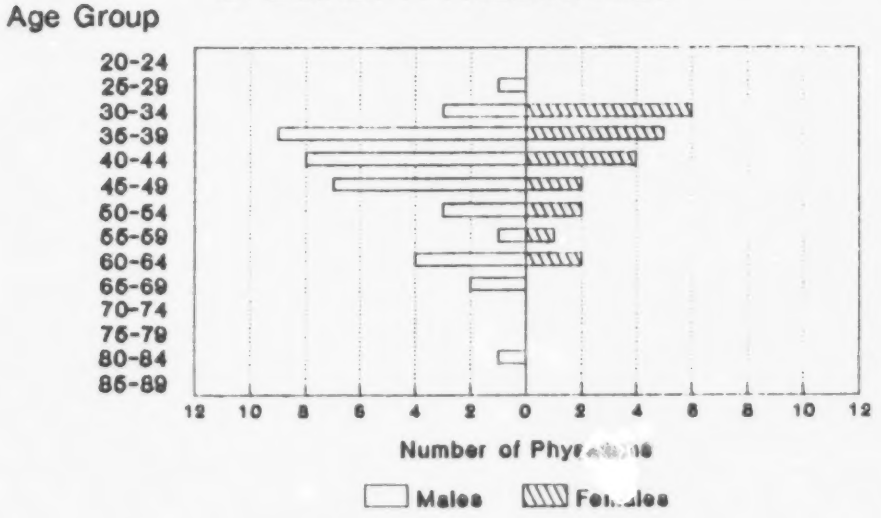
FEE-FOR-SERVICE F.T.E.s, 1987-88
SPECIALTY: NEUROLOGY



Excludes those physicians whose age or sex is unknown.

FIGURE 44

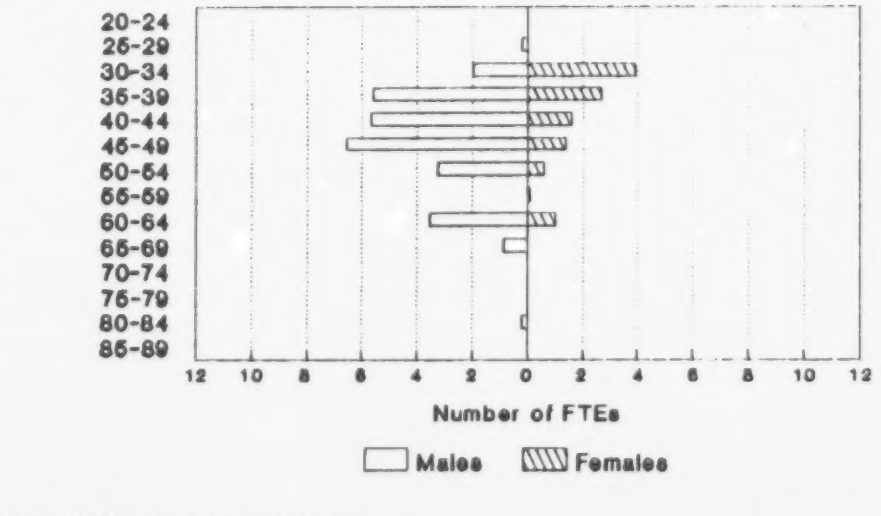
FEE-FOR-SERVICE PHYSICIANS, 1987-88
SPECIALTY: PAEDIATRICS



Excludes those physicians whose age or sex is unknown.

FIGURE 45

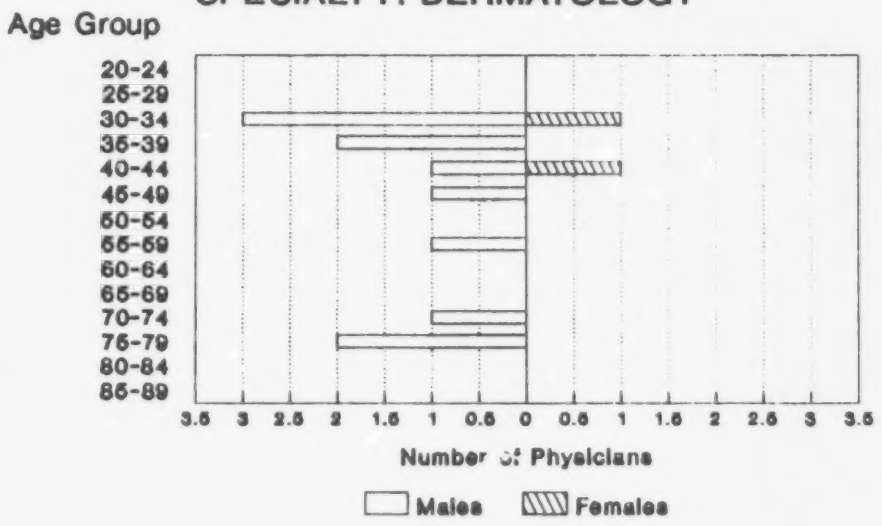
FEE-FOR-SERVICE F.T.E.s, 1987-88
SPECIALTY: PAEDIATRICS



Excludes those physicians whose age or sex is unknown.

FIGURE 46

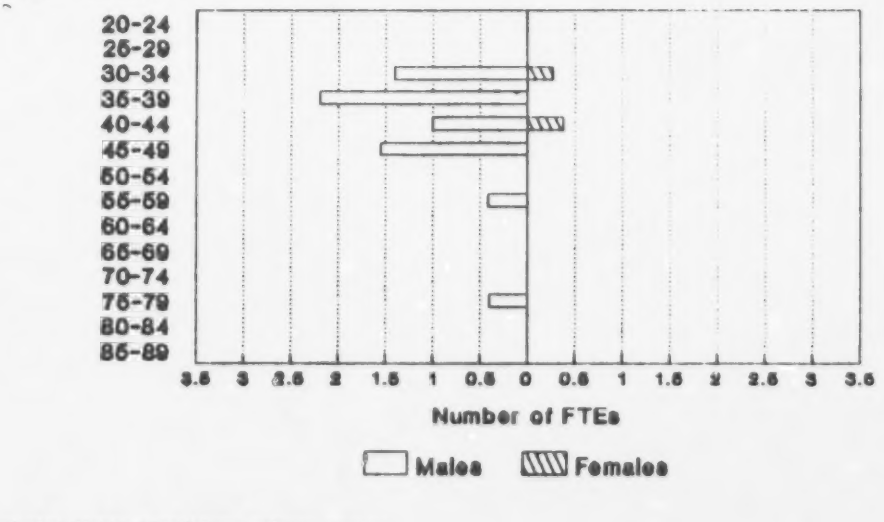
FEE-FOR-SERVICE PHYSICIANS, 1987-88
SPECIALTY: DERMATOLOGY



Excludes those physicians whose age or sex is unknown.

FIGURE 47

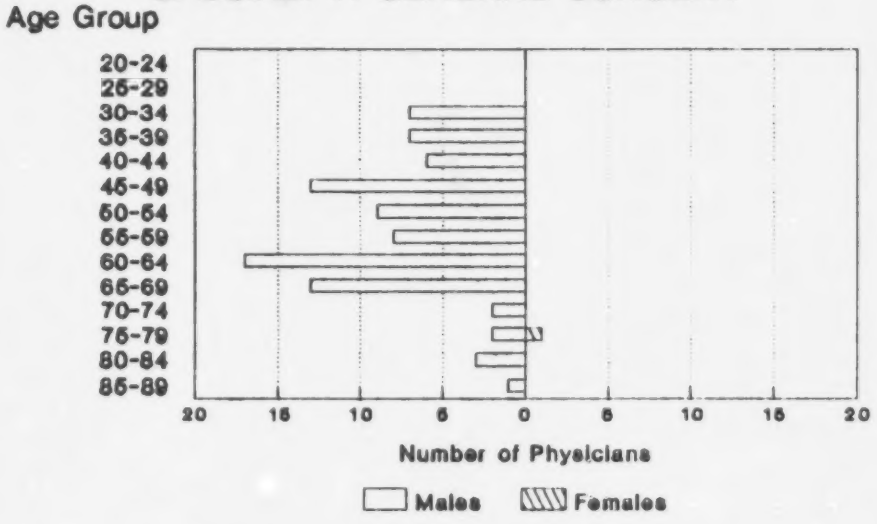
FEE-FOR-SERVICE F.T.E.s, 1987-88
SPECIALTY: DERMATOLOGY



Excludes those physicians whose age or sex is unknown.

FIGURE 48

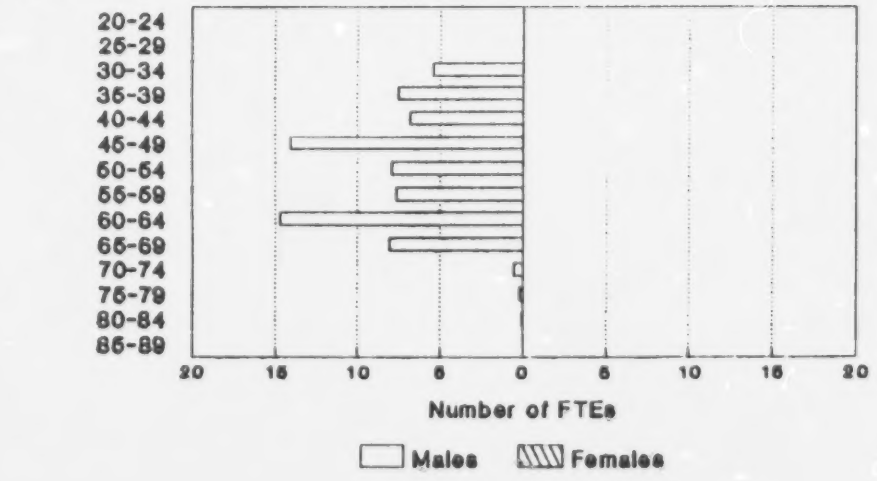
FEE-FOR-SERVICE PHYSICIANS, 1987-88
SPECIALTY: GENERAL SURGERY



Excludes those physicians whose age or sex is unknown

FIGURE 49

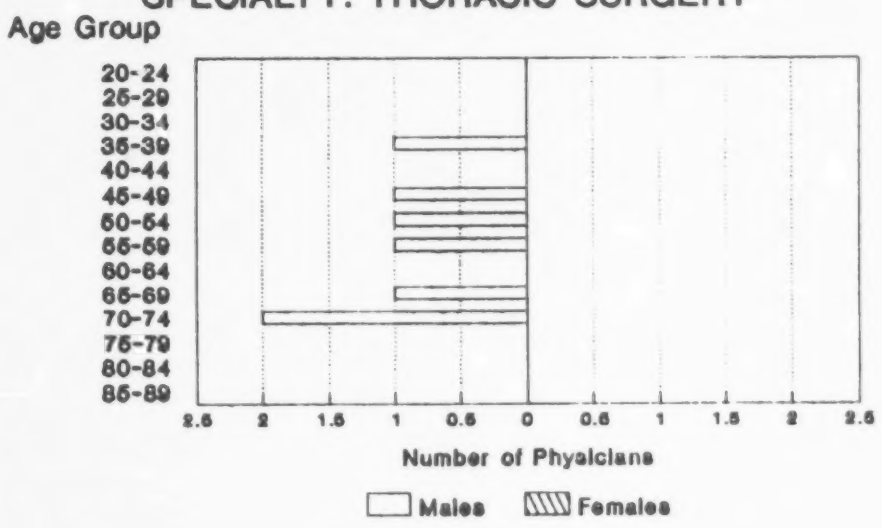
FEE-FOR-SERVICE F.T.E.s, 1987-88
SPECIALTY: GENERAL SURGERY



Excludes those physicians whose age or sex is unknown.

FIGURE 50

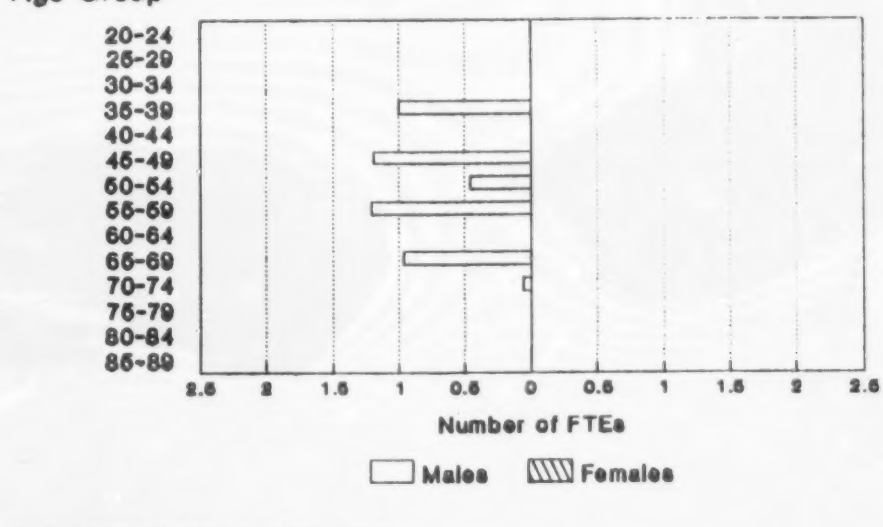
FEE-FOR-SERVICE PHYSICIANS, 1987-88
SPECIALTY: THORACIC SURGERY



Excludes those physicians whose age or sex is unknown.

FIGURE 51

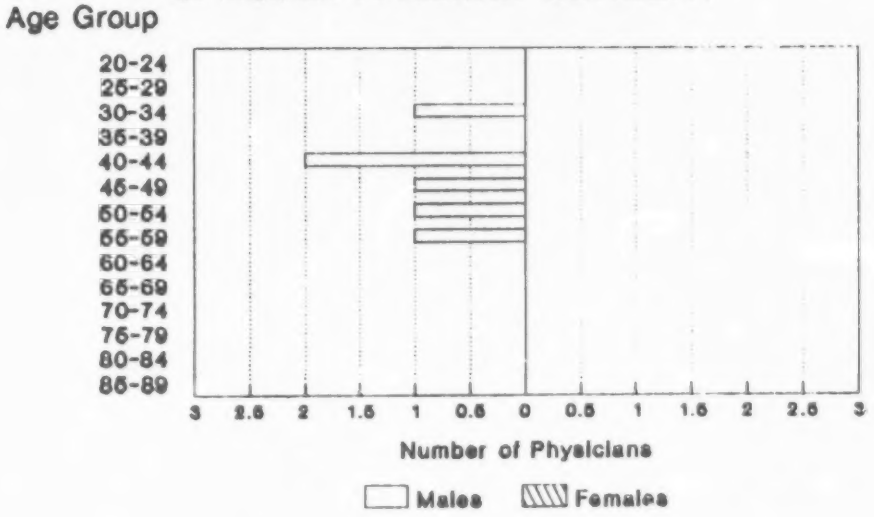
FEE-FOR-SERVICE F.T.E.s, 1987-88
SPECIALTY: THORACIC SURGERY



Excludes those physicians whose age or sex is unknown.

FIGURE 52

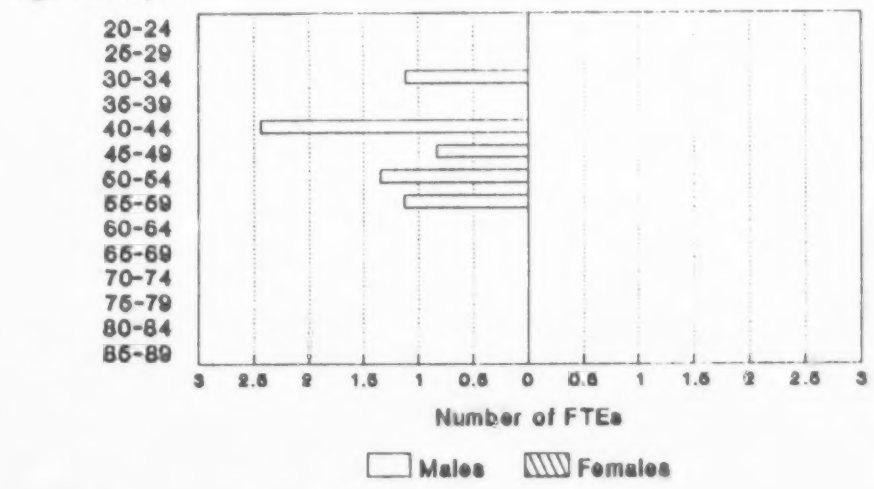
FEE-FOR-SERVICE PHYSICIANS, 1987-88
SPECIALTY: NEURO SURGERY



Excludes those physicians whose age or sex is unknown.

FIGURE 53

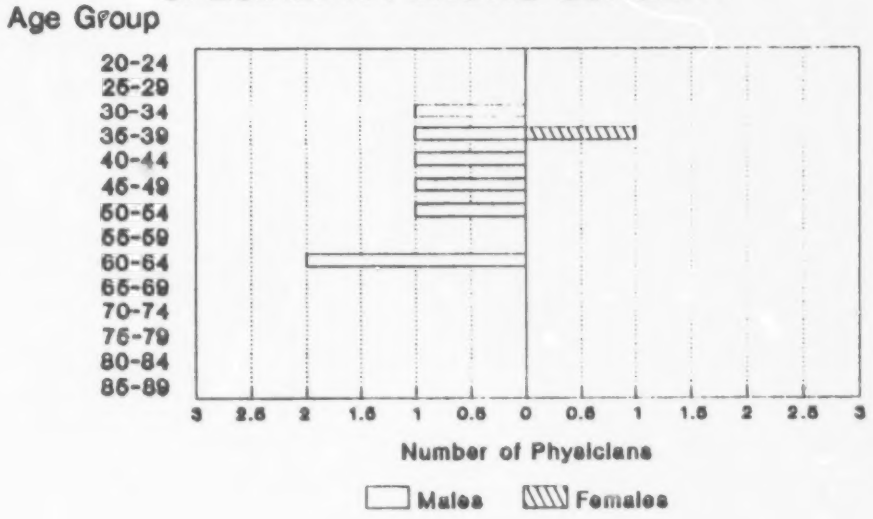
FEE-FOR-SERVICE F.T.E.s, 1987-88
SPECIALTY: NEURO SURGERY



Excludes those physicians whose age or sex is unknown

FIGURE 54

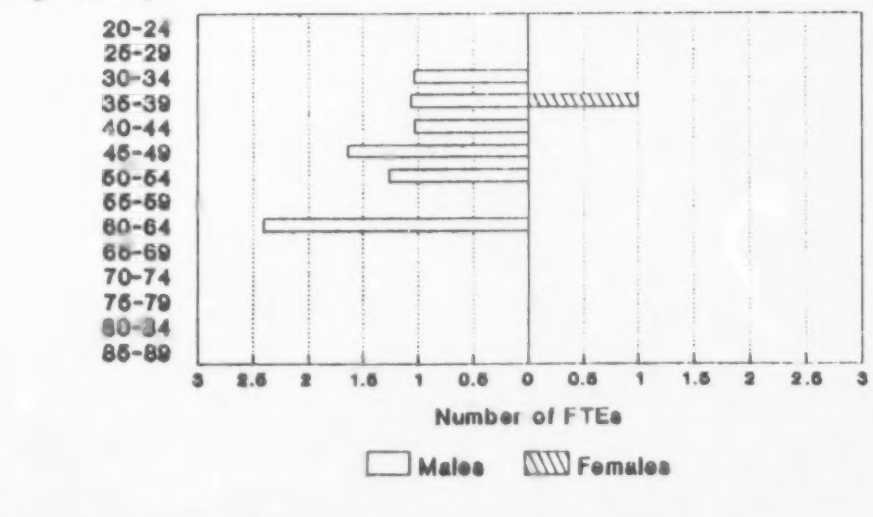
FEE-FOR-SERVICE PHYSICIANS, 1987-88
SPECIALTY: PLASTIC SURGERY



Excludes those physicians whose age or sex is unknown.

FIGURE 55

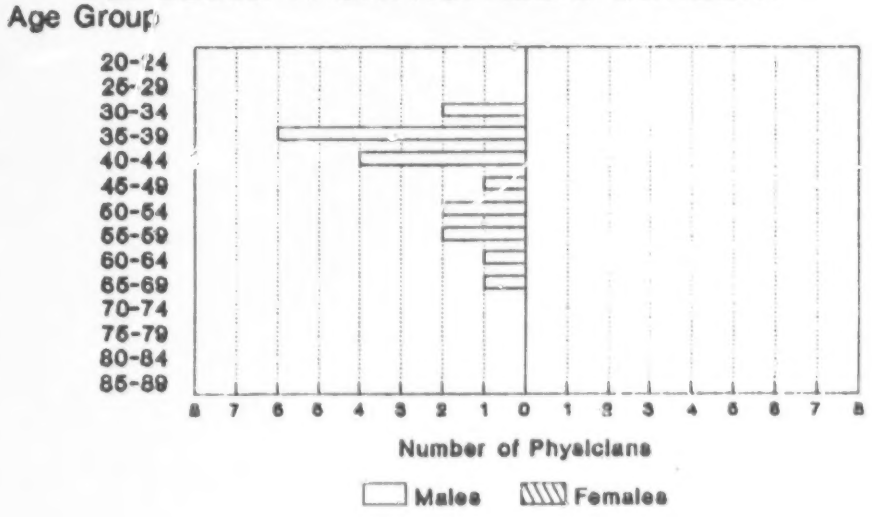
FEE-FOR-SERVICE F.T.E.s, 1987-88
SPECIALTY: PLASTIC SURGERY



Excludes those physicians whose age or sex is unknown.

FIGURE 56

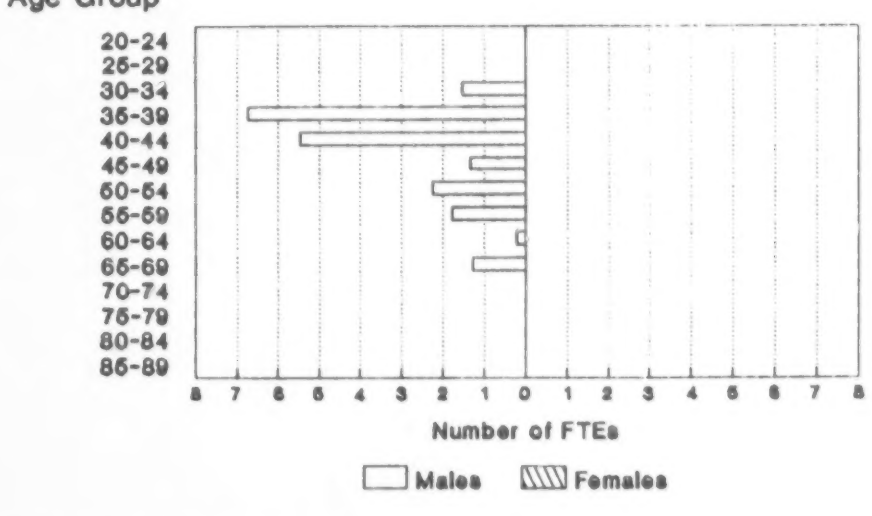
FEE-FOR-SERVICE PHYSICIANS, 1987-88
SPECIALTY: ORTHOPAEDIC SURGERY



Excludes those physicians whose age or sex is unknown.

FIGURE 57

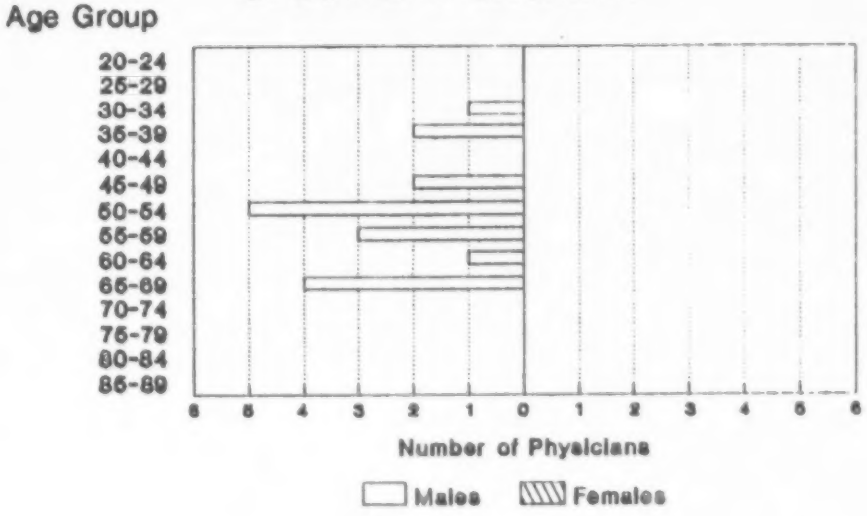
FEE-FOR-SERVICE F.T.E.s, 1987-88
SPECIALTY: ORTHOPAEDIC SURGERY



Excludes those physicians whose age or sex is unknown.

FIGURE 58

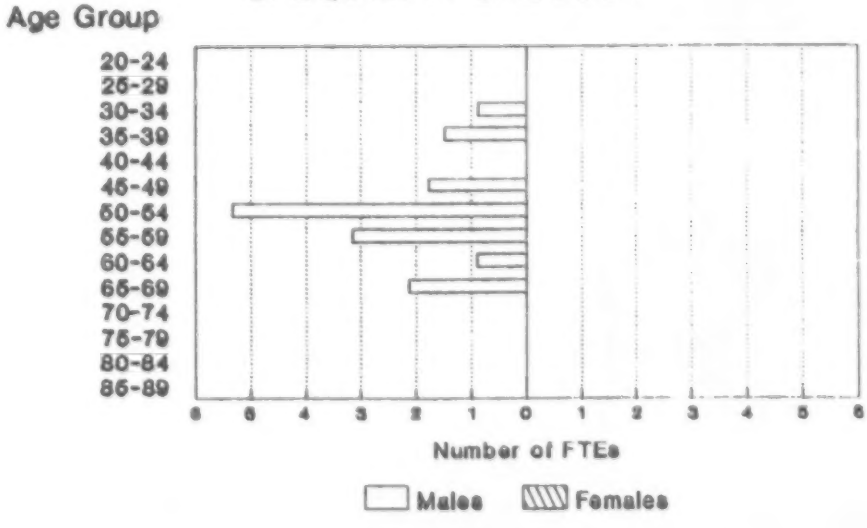
FEE-FOR-SERVICE PHYSICIANS, 1987-88
SPECIALTY: UROLOGY



Excludes those physicians whose age or sex is unknown.

FIGURE 59

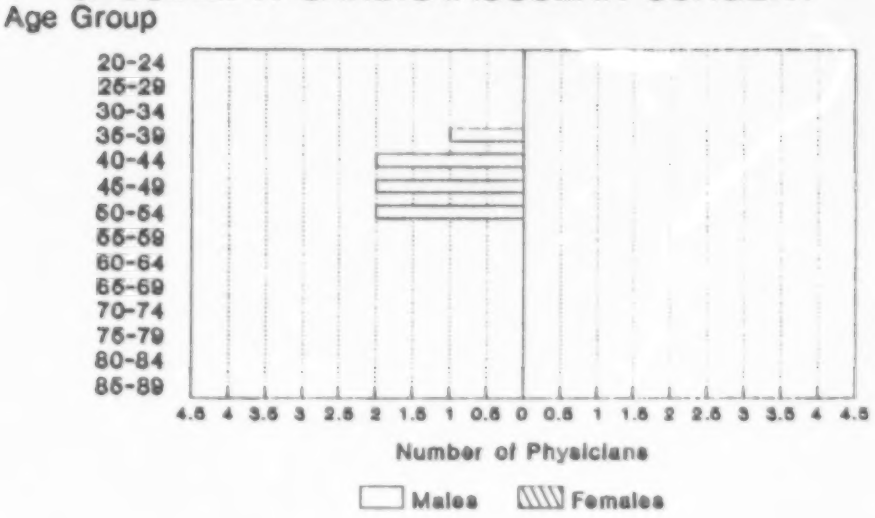
FEE-FOR-SERVICE F.T.E.s, 1987-88
SPECIALTY: UROLOGY



Excludes those physicians whose age or sex is unknown.

FIGURE 60

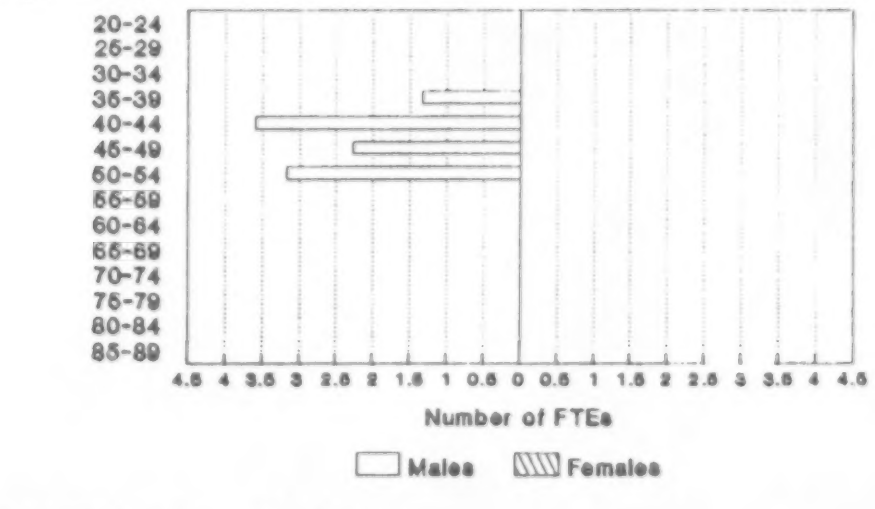
FEE-FOR-SERVICE PHYSICIANS, 1987-88
SPECIALTY: CARDIOVASCULAR SURGERY



Excludes those physicians whose age or sex is unknown.

FIGURE 61

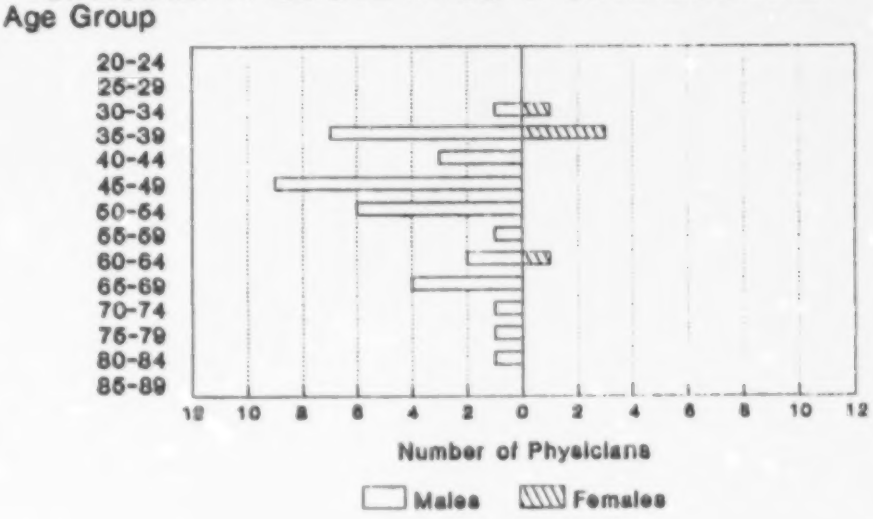
FEE-FOR-SERVICE F.T.E.s, 1987-88
SPECIALTY: CARDIOVASCULAR SURGERY



Excludes those physicians whose age or sex is unknown.

FIGURE 62

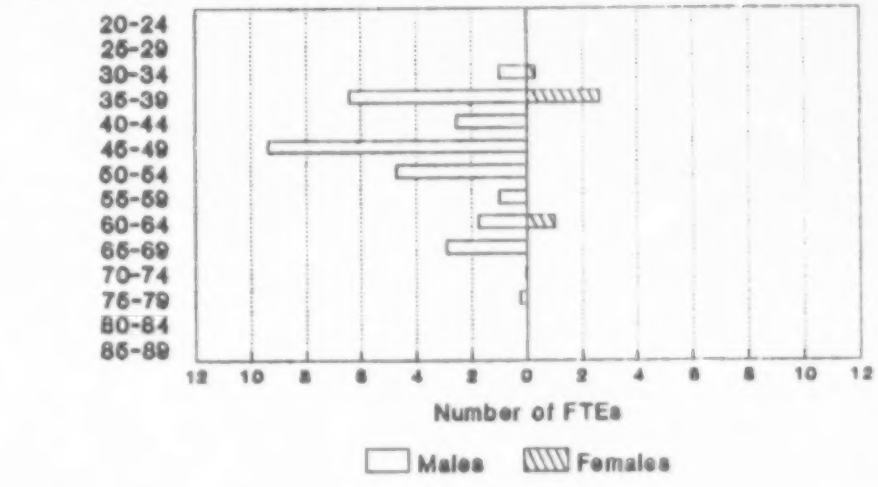
FEE-FOR-SERVICE PHYSICIANS, 1987-88
SPECIALTY: OBSTETRICS & GYNAECOLOGY



Excludes those physicians whose age or sex is unknown.

FIGURE 63

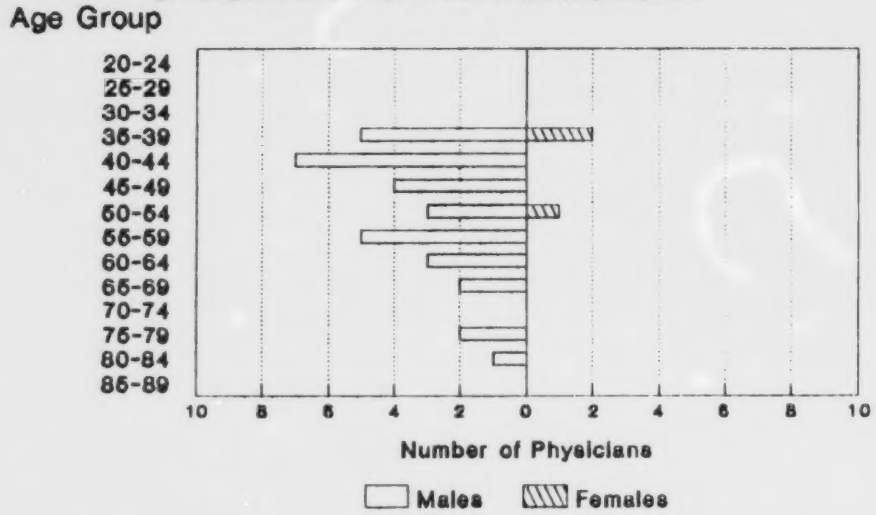
FEE-FOR-SERVICE F.T.E.s, 1987-88
SPECIALTY: OBSTETRICS & GYNAECOLOGY



Excludes those physicians whose age or sex is unknown.

FIGURE 64

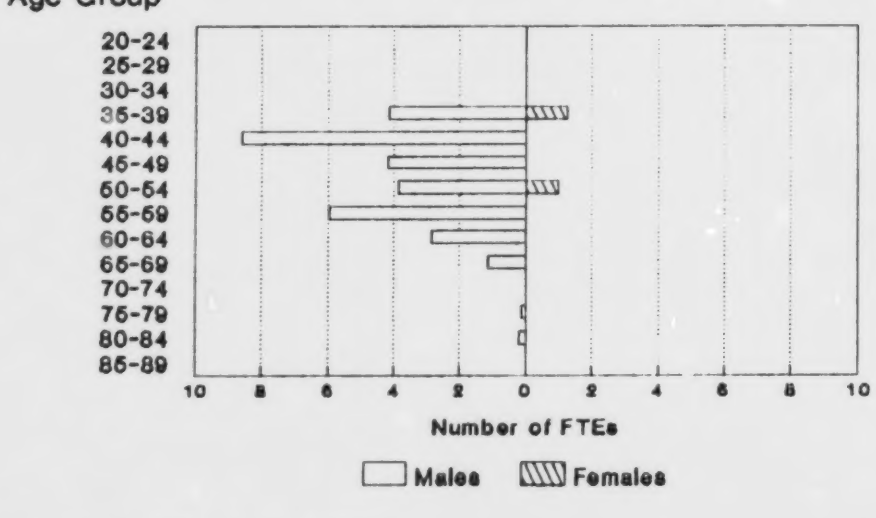
FEE-FOR-SERVICE PHYSICIANS, 1987-88
SPECIALTY: OPHTHALMOLOGY



Excludes those physicians whose age or sex is unknown.

FIGURE 65

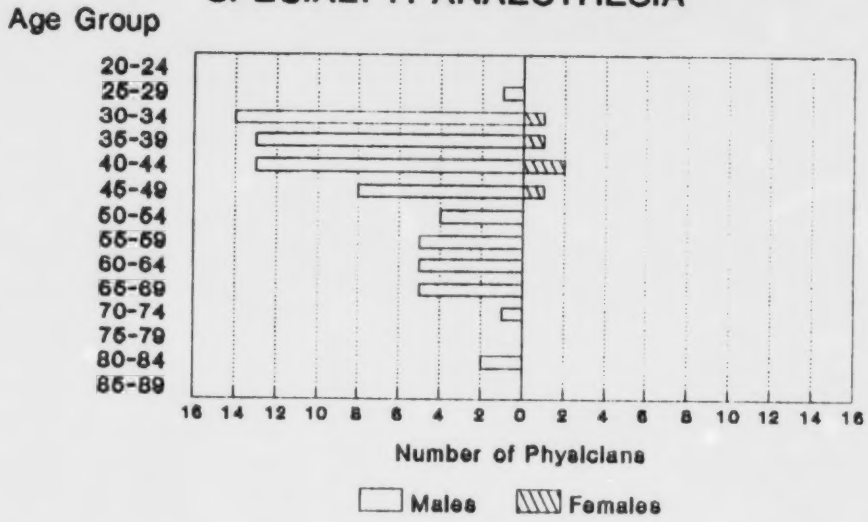
FEE-FOR-SERVICE F.T.E.s, 1987-88
SPECIALTY: OPHTHALMOLOGY



Excludes those physicians whose age or sex is unknown.

FIGURE 66

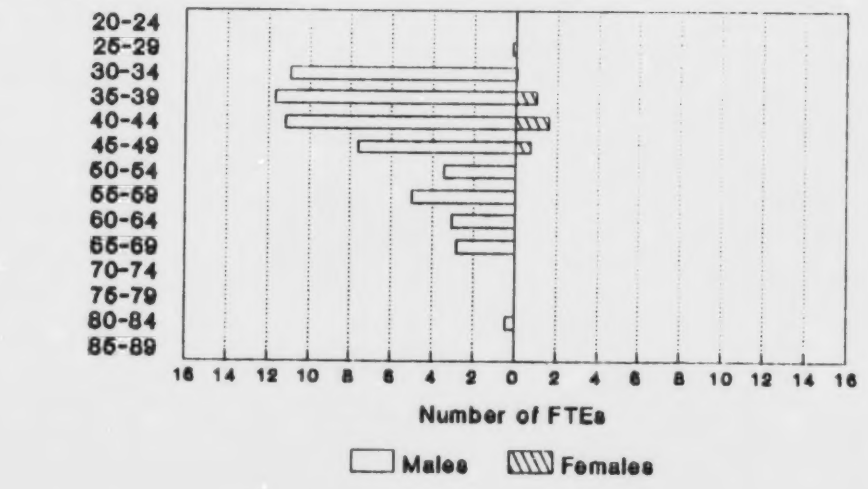
FEE-FOR-SERVICE PHYSICIANS, 1987-88
SPECIALTY: ANAESTHESIA



Excludes those physicians whose age or sex is unknown.

FIGURE 67

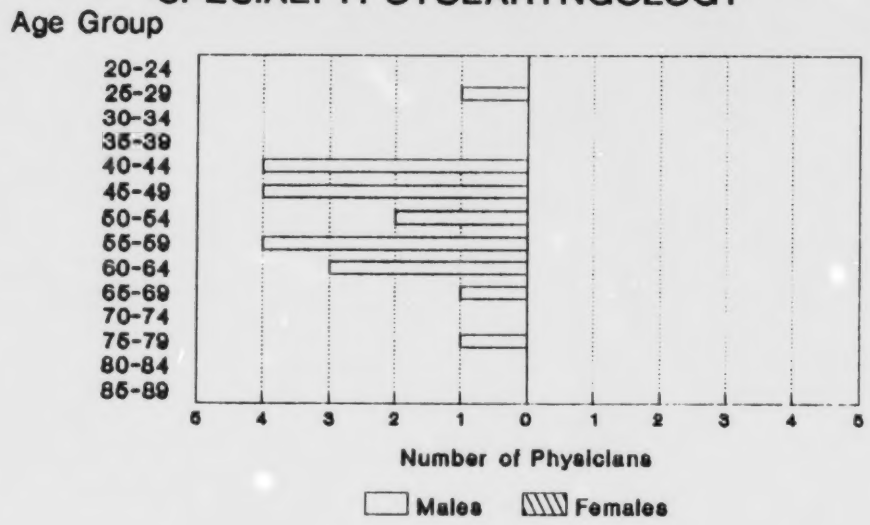
FEE-FOR-SERVICE F.T.E.s, 1987-88
SPECIALTY: ANAESTHESIA



Excludes those physicians whose age or sex is unknown.

FIGURE 68

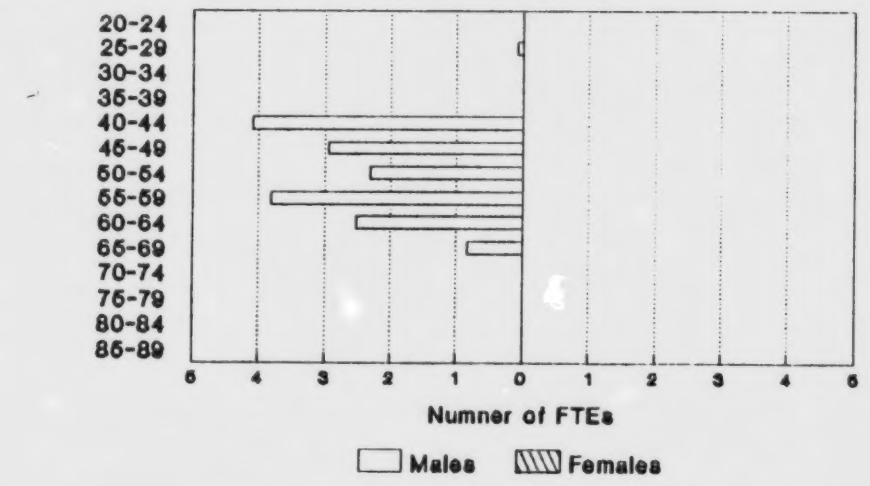
FEE-FOR-SERVICE PHYSICIANS, 1987-88
SPECIALTY: OTOLARYNGOLOGY



Excludes those physicians whose age or sex is unknown.

FIGURE 69

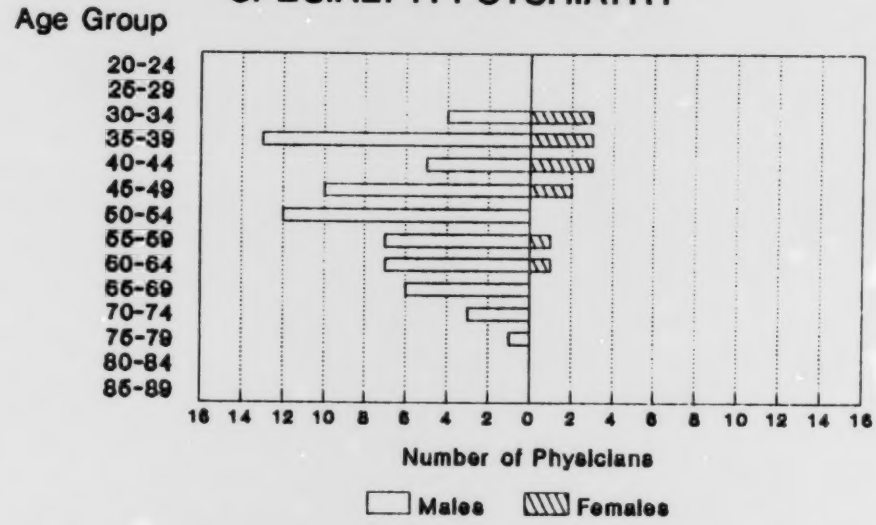
FEE-FOR-SERVICE F.T.E.s, 1987-88
SPECIALTY: OTOLARYNGOLOGY



Excludes those physicians whose age or sex is unknown.

FIGURE 70

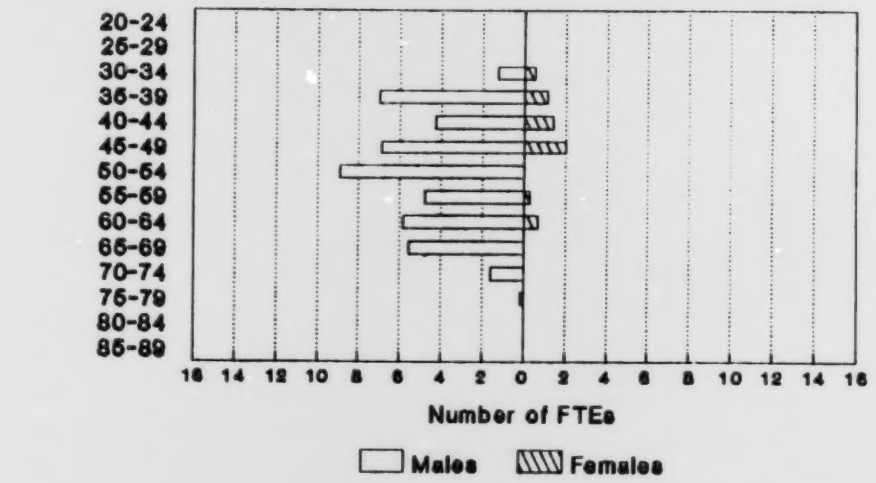
FEE-FOR-SERVICE PHYSICIANS, 1987-88
SPECIALTY: PSYCHIATRY



Excludes those physicians whose age or sex is unknown.

FIGURE 71

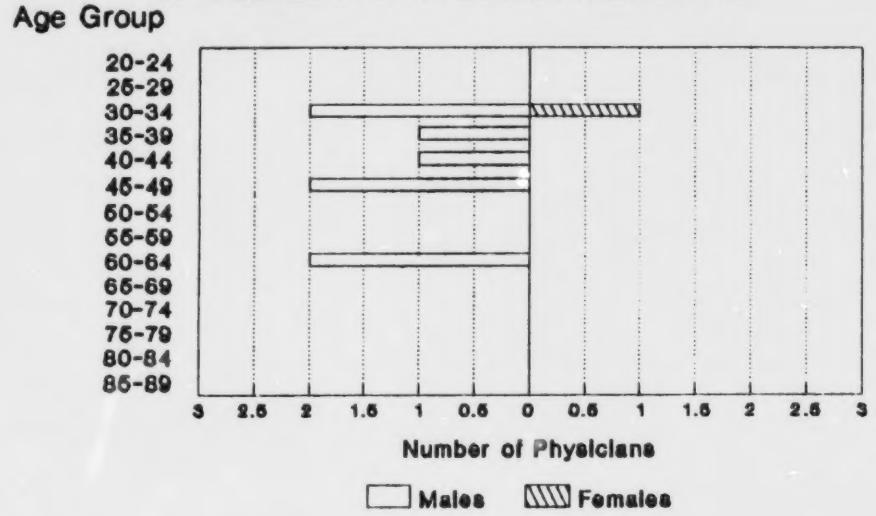
FEE-FOR-SERVICE F.T.E.s, 1987-88
SPECIALTY: PSYCHIATRY



Excludes those physicians whose age or sex is unknown.

FIGURE 72

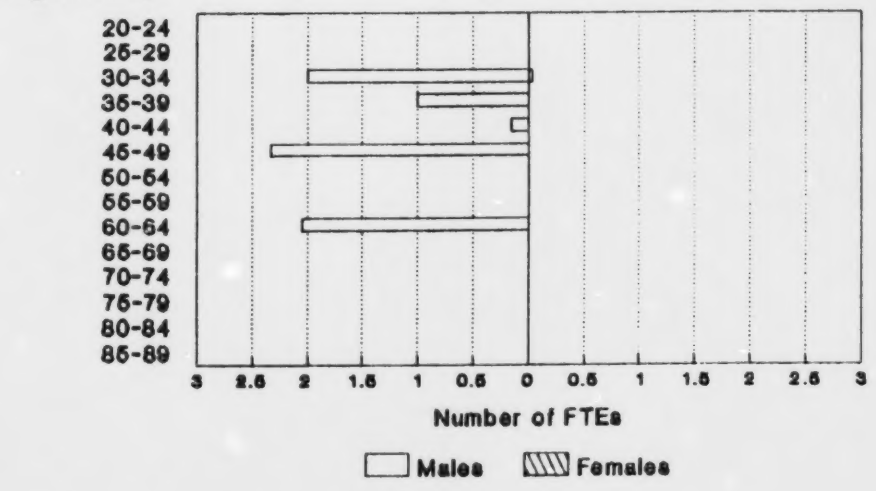
FEE-FOR-SERVICE PHYSICIANS, 1987-88
SPECIALTY: PHYSICAL MEDICINE



Excludes those physicians whose age or sex is unknown.

FIGURE 73

FEE-FOR-SERVICE F.T.E.s, 1987-88
SPECIALTY: PHYSICAL MEDICINE



Excludes those physicians whose age or sex is unknown.

CHAPTER THREE

PHYSICIAN SUPPLY TRENDS AND PROJECTIONS

1.0 Introduction

Projection of physician supply in Nova Scotia to year 2006 is the subject of this chapter. Since the future is unknown, projections are of necessity based on a series of assumptions. Provided these assumptions are made explicit, and reasons are given for choosing these assumptions rather than alternative assumptions, the reader is in a position to judge whether the projections are reasonable.

The procedure adopted here is to first develop a single projection, or scenario, based on a set of assumptions. Two alternative projections, or scenarios, are added later.

Population growth projections for Canada and for Nova Scotia are those of Statistics Canada. Projections of physicians per capita, or population per physician, are made by combining projections for number of physicians and population.

2.0 Projections versus Predictions

The distinction between a projection and a prediction is important. A projection is literally the number which will be realized if all the assumptions underlying the projection turn out to be true. There is no limit to the number of projections which one might make. A projection may or may not coincide with a prediction.

A prediction is, in a sense, the analyst's best or "most likely" projection. A prediction will also be based on certain assumptions, weighted by the analyst's perceived probability of their being realized. Predictions dependent upon human behaviour, e.g., population and physicians growth rates, are subject to greater uncertainty and margins of error than predictions dependent upon natural science phenomena, e.g., growth rates for cell cultures. This is true for a variety of reasons. While there is evidence of considerable stability in the collective response of people to various incentives and disincentives, which provides a basis for prediction, there is also much uncertainty as to when behavioral patterns will shift. Not least of the areas of uncertainty is that involving policy choices.

The projection of physician supply in Canada requires assumptions about the size of undergraduate enrolment in Canadian medical schools, immigration and licencing of foreign medical school graduates, emigration of physicians from Canada, and attrition due to deaths and retirements. Each of these factors affecting the rate of growth of physician supply is subject to numerous policy decisions and the collective decisions of millions of individuals. Policy decisions themselves may be influenced by the act of producing projections and the discussion

of their implications. The process of arriving at a "best projection" is therefore more complicated than, and fundamentally different from, the process of producing a projection based on past trends.

This chapter presents projections of physician supply and population in Nova Scotia and Canada to year 2006, based on assumptions described below. No predictions are made. But there is extensive discussion of what the consequences would be if certain basic assumptions are not realized.

3.0 Physician Supply: Trends and Projections

3.1 Nova Scotia Trends

The supply of physicians in Nova Scotia has grown continuously over recent decades. Figure 1 and Table 1 show growth since 1970, using five reliable sources of data. The numbers of physicians reported by these five sources differ somewhat, reflecting the different definitions used for purposes of counting physicians, but all five sources show similar trends.

Provincial Medical Board Data (PMB). To practice medicine in Nova Scotia, physicians must ordinarily be licensed by the Nova Scotia PMB. The number of PMB registered physicians resident in Nova Scotia is represented in Figure 1 by "Reg Phys (PMB)". The number of "active" PMB registered physicians, after excluding self-declared "retired" and inactive physicians, is represented by "Act Phys (PMB) +".

Health and Welfare Canada annually publishes data collected by Sales Management Services (SMS), which provides up-to-date mailing lists of active clinicians to commercial interests. This series is represented by "Act Phys (SMS) *".

Nova Scotia Medical Services Insurance (MSI) data included in Figure 1 show two counts of physicians paid under the provinces universal, comprehensive, first-dollar coverage medical care insurance program. "Phys Pd MSI x" represents all physicians paid $1 or more by MSI in a year for providing insured services, regardless of the method of payment. "FTEs []" shows the number of "Full Time Equivalent" (FTE) physicians paid by MSI. A FTE physician is defined in terms of the value of clinical services billed to MSI during a year. This FTE measure is for many purposes the most useful measure of the availability of physician services in Nova Scotia.

Over the 18 year period from 1970 to 1987, the number of Full Time Equivalent clinicians in Nova Scotia doubled, from 611.1 to 1231.7. This is the lowest, or most conservative, count of physicians. The most inclusive count of physicians comes from

the Provincial Medical Board, which reported that the number of registered physicians increased from 1126 in 1970 to 1799 in 1987.

3.2 Canadian Trends and Sources of Growth

The supply of physicians in Nova Scotia is an integral part of the supply of physicians in Canada. There is a national market for physicians in that Licentiate of the Medical Council of Canada (LMCC) is recognized by all provincial licencing bodies for purposes of granting a licence to practice medicine, and almost all practicing physicians have an LMCC, except in Quebec. This removes barriers to interprovincial migration, making the market for physician services in Canada a national market rather than a series of segregated provincial markets.

Given this national market for physicians, and the large annual interprovincial flows of physicians, the prime determinant of the number of physicians in any given province is the number of physicians licensed to practice medicine in Canada. Given the absence of barriers to interprovincial mobility, physicians choose practice locations which have attractive professional opportunities and which suit their personal tastes and preferences.

Observed differences in population / physician ratios across provinces, and regionally within provinces, reflects physicians' choice of practice location. As the market grows, however, the supply of new physicians is distributed across all provinces and territories in response to the relative attractiveness of opportunities existing at that time. Thus, the growth of physicians in each of the provinces and territories reflects in large part the growth of the total supply of physicians in Canada.

The number of active civilian physicians in Canada and in Nova Scotia, excluding interns and residents, almost doubled from 1968 - 1987, as shown in Figures 2 and 3. Sources of growth are, first, Canadian medical school graduates, and second, foreign trained medical school graduates (immigrants). Reductions in numbers of physicians in Canada occur due to emigration (primarily to the U.S.), retirements and deaths.

3.3 Canadian Medical School Graduates

Figure 4 shows the number of graduates of Canadian medical schools from 1968 - 1987, by sex. Graduates increased from 1016 in 1968 to 1714 in 1977, or by 69%. This expansion reflected recommendations of the Hall Commission, which identified the need for more physicians in Canada as a consequence of introducing

universal and comprehensive publicly financed first-dollar coverage medical care insurance programs. The Hall Commission recommended that four new medical schools be built and that the enrolment capacity of the twelve schools already in place should be increased by about 50%. These recommendations were acted upon. The number of annual Canadian medical school graduates increased as planned, and has remained stable. Canadian medical schools graduated 1785 physicians per year, on average, from 1983 - 1987.

3.4 Immigration of Foreign Trained Physicians

The authors of the Hall Commission Report did not foresee the extraordinary increase in the number of foreign trained physicians who immigrated to Canada in the 1960's and early 1970's. The annual number of immigrant physicians, as reported in the Health and Welfare publication "Canada Health Manpower Inventory", rose from 445 in 1961 to 1277 in 1968 (Figure 5). This radically altered the rate of growth in the number of physicians per capita in Canada, accelerated the rate of growth in medicare expenditures, and lead to 1974 revisions in Canada's Immigration Act which reduced the number of foreign trained immigrant physicians to about 400 annually. Annual immigration of foreign trained physicians has remained relatively constant since 1976, fluctuating slightly above and below this 400 figure from year to year.

3.5 Emigration of Physicians from Canada

The emigration of physicians from Canada during the period 1961 - 1987 has also been volatile, ranging from a low of 236 annually to a high of 663 (Figure 5). The emigration of physicians from Canada is not subject to any controls. Swings in the numbers of emigrants reflects a host of factors affecting the relative attractiveness of professional practice and living conditions in Canada and the United States, the destination of most emigrant physicians. It is virtually impossible to forecast the timing and magnitude of future swings in emigration of physicians from Canada.

A striking feature of the period 1980 - 1987 is that net immigration of physicians to Canada, i.e., number of immigrants minus number of emigrants, was essentially zero. There was a small net influx in some years and a small net loss in other years, but for the period as a whole immigration was offset by emigration. This means that during this period the growth in numbers of physicians in Canada was due entirely to the annual flow of new graduates from Canadian medical schools. However, it should be noted that there are a number of physicians who enter the country and do not state they are physicians, and may at a

later date request licensure.

3.6 Slow Canadian Population Growth

The Hall Commission was unsuccessful in projecting the number of physicians Canada needed to achieve a target population/physician ratio of 650:1 by the 1990's. First, as noted above, the Commission failed to foresee the extraordinary rise in immigration to Canada of foreign trained physicians during the late 1960's. Second, the Commission failed to foresee the extraordinary decline in Canadian birth rates and size of Canadian families, which produced a much lower rate of growth in population than that assumed for purposes of projecting Canada's physician manpower requirements.

3.7 Projection Errors

By overestimating the rate of growth of Canada's population, and underestimating the rate of growth of physicians, the Hall Commission, in retrospect, overestimated the extent to which expansion of Canadian Medical Schools was required to meet the target population/physician ratio of 650:1. This target ratio was achieved in the early 1980's. By 1987/88 the population/physician ratio in Canada was 589:1 and in Nova Scotia was 541:1.

3.8 Decisions to Expand and to Contract

The Hall Commission's recommendation to increase the rate of growth physicians in Canada by training more physicians in Canada was accepted. Federal and provincial governments cooperated in funding and building four new medical schools and in expanding the 12 existing medical schools.

Decisions to reduce the rate of growth of physician manpower are more difficult to implement. Physician manpower studies have concluded for at least a decade that a lower rate of growth is warranted, given the very favourable population/physician ratios which Canada now enjoys. A consensus on this matter has emerged, at least among health manpower analysts.

Federal and provincial governments are reluctant to publicly acknowledge the rate of growth of physicians is greater than the rate of growth of Canada's population, and to act cooperatively to reduce the rate of growth of physician supply in Canada. Yet until collective action is taken to reduce the rate of growth over the long run, short run upward pressures on expenditures for physicians services will continue to build.

3.9 Basic Assumptions Used to Project Physician Supply to the Year 2006

Three projections of physician supply in Nova Scotia to year 2006 are presented below. These projections are based on three sets of assumptions, designated Scenario I, Scenario II and Scenario III.

Based on a review of past trends in physician numbers in Canada, the following assumptions were made for purposes of projecting the number of physicians in Canada and Nova Scotia to year 2006.

Scenario I

Assumption #1 It is assumed that the annual number of graduates from Canadian medical schools will remain unchanged, at 1785 per year, during the period of projection.

Assumption #2 It is assumed that the annual immigration of foreign trained physicians to Canada will be offset by the annual emigration of physicians from Canada, on average, so the net contribution of immigration and emigration is zero over the entire period of projection.

Assumption #1 assumes continuation of the situation which prevailed in Canada from 1976 - 1987. Assumption #2 assumes continuation of the immigration - emigration balance which prevailed from 1980 - 1987.

Assumption #1 concerning the constancy of the number of graduates from Canadian medical schools is more likely to be realized than is Assumption #2. Despite many federal and provincial studies of physician manpower in Canada which have documented that the growth rate of numbers of physicians is faster than the growth rate in the Canadian population, no major corrective action has been taken since 1974, when the Canada Immigration Act was revised.

Despite a growing consensus that if current growth rates continue we may soon have population per physician ratios that are excessively low, by any standards, undergraduate enrolment has remained high.

The only cuts in undergraduate medical school enrolment which have been made in recent years were in Manitoba (by about 10) and in Nova Scotia (by 13). These cuts reduced the annual number of graduates by less than two percent, so had a negligible effect on growth in numbers of physicians in Canada, Manitoba and

Nova Scotia. To date it has proved impossible to reach a federal-provincial agreement regarding the extent of reduction needed and how to achieve it. During the past two decades, no political will has not developed to reach an equitable solution for spreading the burden of adjustment among sixteen medical schools in eight provinces. It is unclear whether this will change over the next twenty years.

One factor present now, to a degree unknown in the past, is the growing burden of public debt and debt servicing expense relative to the size of federal and provincial budgets. It is unclear whether this growing debt burden, or other unknown factors, will trigger decisions which will reduce undergraduate enrolment in Canadian medical schools. The assumption made, for purposes of forecasting growth in physician supply to year 2006 and beyond, is that the number of graduates from Canadian medical schools will remain unchanged at about 1785 annually.

Assumption #2, that immigration and emigration of physicians will offset one another over the period of projection, is more tenuous. Immigration policy can, in principle, limit immigration of foreign trained physicians to whatever level is deemed appropriate. The 1974 amendments to the Immigration Act proved effective. But other considerations serve to put limits on the extent to which barriers can be placed to prevent the immigration of foreign trained physicians to Canada, e.g., treatment of applications for immigration by relatives and those seeking political asylum. Despite this, the extent of physician immigration is clearly subject to control by the Government of Canada, with inputs provided from the provinces.

In contrast, the extent of emigration of physicians from Canada is not subject to any controls. The number of physician emigrants has changed substantially and unpredictably in the past, and is likely to do so in future. Only if foreign governments, and particularly the U.S., put new constraints on the immigration of physicians from Canada might the annual emigration figures become stable and predictable. It was assumed, for purposes of projecting growth in physicians in Canada, that emigration would offset immigration, on average, over the period of projection.

Assumption #1 is incorporated in Figure 4, which shows projections of the number of medical school graduates to be 1785 annually from 1988 to 2006. Assumption #2 is incorporated in Figure 5, which projects annual immigration and emigration of physicians to be 375 annually from 1988 to 2006.

Attrition of physicians due to death, retirement and other factors is assumed to be 0.71% annually in both Canada and Nova Scotia. The actual attrition rate will differ across provinces and over time due to changes in the age/sex distribution of

physicians. The attrition rate is quite stable and changes only gradually through time.

4.0 Population per Physician Trends and Projections

A projection of the number of active civilian physicians in Canada and Nova Scotia to the year 2006, excluding interns and residents, is shown in Figures 2 and 3. The projected annual compound rate of growth for Canada is slightly greater than that for Nova Scotia (2.28% versus 2.20%), with the difference due to a lower population growth rate in Nova Scotia (Table 2).

Population growth in Canada and in Nova Scotia from 1976 to 1987, with Statistics Canada projections of population growth to year 2006, are shown in Figures 6 and 7. The projected annual rate of growth for the Canadian population is 0.48%, while that for Nova Scotia is 0.41%.

Population per physician ratios in Canada and Nova Scotia have fallen substantially over the past two decades, and are projected to continue to decline until year 2006 and beyond (See Figure 8 and Tables 3 and 4). Nova Scotia's population to physician ratio, excluding interns and residents, declined from 732 in 1976 to 547 in 1987 and is projected to decline to 390 by year 2006, based on Health and Welfare Canada SMS data. Population to physician ratios, which include interns and residents, are, of course, lower still.

The number of interns and residents in Canada and in Nova Scotia is projected to increase less rapidly from 1988 to 2006, than from 1976 to 1987 (Figures 9 and 10). The flatter projected trend reflects steps taken recently to limit funding for residency positions. The projected trends also reflect recent statements which indicate that half of funded residency positions should be for general/family practitioners and half for other specialties.

Trends and projections in active civilian physicians in Canada and Nova Scotia, including interns and residents, are shown in Figures 11 and 12.

5.0 Full-Time Equivalent Physician Supply

Full Time Equivalent (FTE) measures of physician supply are designed to provide a more accurate measure of the supply of active clinicians then is indicated by head counts of the number of physicians licensed to practice medicine. Because physicians' workloads, as measured by the volume and value of clinical services provided, vary greatly among physicians, and also over the professional lifetime of each physician, the proportion of

physicians who are classified as FTE is not constant through time. Instead, the ratio of FTE's to all physicians will vary as a function of many factors, e.g., the changing age and sex distribution of physicians.

Figures 13, 14 and 15 provide interesting illustrations of how the Nova Scotia ratios of FTE physicians to all physicians changed from 1971 to 1988, for General Practitioners (GPs), for Medical Specialists and for Surgical Specialists. The ratio of FTEs to all GPs was relatively stable from 1971 to 1984, then fell markedly through 1988. The ratio of FTE medical specialists to all medical specialists was more stable than that for GPs. The ratio of FTE surgical specialists to all surgical specialists was less stable than that of medical specialists, and increased throughout the period 1971 - 1988.

Female physicians provide fewer clinical services annually, on average, than do their male counterparts of similar age and training. Figure 16 shows the percentage of all Nova Scotia physicians who were female, and the percentage of all Nova Scotia FTEs that were female, in 1982-83 and in 1987-88. In each of those years the percent of FTE who were female was less than the percent of physicians who were female. The proportion of females admitted to Canadian medical schools increased dramatically in the 1970s as a matter of policy (Figure 4). This has gradually increased the percentage of practicing physicians that are female, and made the rate of growth in FTE physicians in Canada slightly less than the rate of growth of physicians. Figure 16 shows that by year 2006 it is projected that 33% of Nova Scotia physicians will be female, and 27% of all FTE physicians will be female.

Figures 17 and 18 show Nova Scotia projections for FTEs, and population per FTE, before and after adjusting for the projected increase in female physicians as a percent of all physicians. It is seen that this adjustment results in only a small downward change in the projected increase in FTEs.

6.0 Projected Supply and Utilization of Physician Services

The preceding sections focused on trends in physician manpower in Canada and Nova Scotia over the past two decades, using various measures of physician supply. Nova Scotia projections to year 2006 were made for number of physicians and for full time equivalent physicians, or FTEs. FTEs are defined with respect to the value of physician services provided by a physician, as measured by MSI billings, and expressed as a ratio of a particular physician's billings divided by the mean billings for his or her peers. Thus the FTE measure of a particular physician's practice may be greater than, equal to, or less than one.

FTE measures of physician supply have two great advantages over head counts of physicians eligible to practice in Nova Scotia. First, by standardizing for absolute and relative changes in fees paid for MSI insured services a fee-schedule-weighted constant dollar index of services provided is produced. When such measures of services provided by each physician are summed across all physicians we get a constant dollar measure of total services provided by clinicians under Nova Scotia's MSI program for medical care. This is an aggregate measure of real output of physicians services.

A second benefit of FTE measures is that, because they are rooted in constant dollar values of services provided per physician, it is a short step from projections of FTEs to projections of constant dollar expenditures in Nova Scotia.

For purposes of analysis, projected expenditure may be expressed as a function of growth in the number and characteristics of physicians and FTEs who provide the services, or expressed in terms of growth in the population which utilizes these services and changes in the types of services utilized.

Table 5 and Figures 19 and 20 present the projected increase in the supply and utilization of MSI physician services, expressed in 1987-88 dollars. The projected total increase is decomposed into projected supply side changes and projected utilization side changes. Projections are given in terms of both total change from 1987 to 2006 and in terms of annual compound percentage change.

The total supply and utilization of physician services in aggregate, expressed in 1987-88 constant dollars, is projected to increase by 45.8% from 1987 to 2006, or by 1.9% annually.

On the supply side, this 1.9% net annual growth in physicians services may be viewed as reflecting a 2.2% annual growth in numbers of physicians in Nova Scotia (see Table 5 and Figure 21), a -0.34% annual growth in FTE physicians due to the increased proportion of female physicians, and a 0.04% annual growth due to a projected increase in the specialty/GP mix in Nova Scotia.

On the utilization side, this net 1.9% annual growth rate in physicians services may be decomposed as follows. Utilization growth of 0.41% annually is required to provide Nova Scotia's growing population with the same level of medical care services utilized in 1987 (Figure 22). An additional growth of 0.39% annually is required to accommodate the ageing of Nova Scotia's population (given that people utilize more services per capita as they age) while maintaining 1987 levels of utilization. The remaining 1.1% annual growth in utilization will represent

increased utilization of services per capita.

These projections of the supply and utilization of physicians services in Nova Scotia to 2006 are expressed in 1987-88 dollars. The projections represent changes in the number, or quantity, of physicians services supplied by Nova Scotian physicians and utilized by Nova Scotians. This quantity index represents a bundle of physician services, where the weighting of the service items included in the bundle is given by the MSI fee paid for that service in 1987-88.

The projections given in Table 5 and Figures 19 and 20 therefore represent growth in the aggregate number of physician services in Nova Scotia to year 2006. These projections are expressed in 1987-88 dollars, and do not include any adjustments for changes in MSI fee schedules. The projected annual rates of increase in total MSI expenditures for physician services would correspond to Table 5 projections for growth in the quantity of MSI services supplied and utilized to year 2006 only if fees paid to physicians remained constant at 1987-88 levels. This would happen only if fee adjustments were limited to changes which compensated for movements in the Consumer Price Index (CPI), i.e., changes designed to keep the real purchasing power of fees constant. To project not only increases in the quantity of MSI physician services to 2006, but also total growth in MSI expenditures (expressed in 1987 dollars) inclusive of changes in fees other than those related to CPI changes, one would have to project annual rates of growth in "real" fees, which is beyond the scope of this physician manpower study.

6.1 Three Alternate Scenarios

The projections of the growth in the number of physicians in Nova Scotia, and growth in the supply and utilization of physicians services to year 2006 given above, are in the nature of baseline "conservative" projections. They are conservative in that the projected rates of increase are probably on the low side rather than the high side, for both number of physicians and physician services. It is therefore useful to consider two other scenarios besides the baseline scenario already given.

Table 6 summarizes the assumptions underlying the projections of growth in number of physicians and in physicians services in Nova Scotia to 2006, for the three different scenarios. Projections for the period 1987 to 2006 are presented in two ways, first, as Total Period Growth (%) and second, as annual compound growth (%).

Scenario I assumes, first, that Canadian medical schools will continue to graduate 1785 physicians annually, and second, that Canadian immigration and emigration of physicians will

offset one another. FTE adjustments were made for growth in the ratio of female/male physicians and in the ratio of specialists/ general practitioners. The index of MSI fees of physician services is assumed constant. The value of MSI services provided and billed annually per physician is assumed constant.

Based on these assumptions, Scenario I projections are that the number of physicians in Nova Scotia would increase at an annual rate of 2.2% to 2006, or by 52.2% overall. After adjustments for relative growth in female physicians and specialists, the growth in full time equivalent (FTE) physicians, and value of MSI services provided (expenditure), are projected to increase somewhat less, by 1.90% annually, and by 45.8% in total relative to 1987 MSI expenditures.

While the assumption that immigration and emigration of physicians cancel each other out is justified by recent experience, this cannot be relied upon. Historically, both immigration and emigration of physicians has fluctuated greatly and unpredictably. Annual immigration of physicians is now much more predictable than previously, because of immigration restrictions introduced in 1974. Despite this, the numbers of physicians allowed to immigrate annually, and the numbers who become licensed to practice annually, are liable to change at any time due to change in policy or administrative practices. Annual emigration will continue to be unpredictable, since there are no Canadian restrictions on emigration, and the relative attractiveness of foreign training and practice opportunities will continue to change in unpredictable ways. Prior to revision of immigration laws in 1974, Canada gained physicians, on average, through immigration and emigration flows. Thus Scenario I may be overly conservative in assuming zero net increase in physicians due to international migration.

SCENARIO II assumes that physician immigration will exceed emigration by 300 annually, in addition to the other assumptions made in Scenario I. This could occur, for example, if immigration were permitted to increase by 150 physicians annually, while emigration spontaneously decreased by 150 physicians annually. Or, the number of foreign trained medical graduates (FTMGs) who are licensed to practice in Canada annually could increase in response to the growing pressure from FTMGs already in Canada who have been unable to become licensed for various reasons. In any case, an increase of an additional 300 physicians per year in Canada would increase the rate of growth of physicians in Nova Scotia, as well as other provinces.

The projected increase in physicians in Nova Scotia under Scenario II is 2.57% annually, compared to 2.20% under Scenario I. This small increase in annual growth would increase total 1987 - 2006 growth in physicians from 51.2% to 62.0%, and increase growth in the number of FTEs and MSI services from 45.8%

to 53.2% in aggregate (Figures 23, 24 and 25).

SCENARIO III incorporates an assumption that the value of services provided increases by 1.0% annually, holding the index of MSI fees constant. This phenomenon, which is found in all provincial medicare programmes, reflects various factors, e.g., increased volume of services, a change in the mix of services toward higher value services, increased "a la carte" billing of services, and the introduction of new services. When this phenomenon occurs, the rate of growth in the value of insured services, and FTEs, will exceed the rate of growth of physicians.

Under Scenario III the annual rate of increase in FTEs and value of MSI services (in constant dollars) is 3.27%, which corresponds to a 94.7% increase in total MSI expenditures over the 19 year period 1987 to 2006.

A comparison of Scenario I, II and III projections of growth in number of physicians and the value of physicians services provided, holding the MSI fee index constant, illustrates the sensitivity of these projections to modest and defensible changes in the underlying assumptions. Holding the MSI fee index constant in the analysis helped to focus on the relationship between growth in numbers of physicians and growth in the total supply and utilization of physician services.

It would be comforting to indicate that these three scenarios represent something equivalent to lower, middle and upper bounds for "reasonable" projections. Unfortunately, while it is more probable that the Scenario I projections do represent something like a lower bound, uncertainty with respect to net international flows of migrants does not give confidence even on the lower bound. At the upper end, larger than assumed increases in number of physicians or number of FTEs could readily generate annual growth rates higher than 3.27%. Indeed, the instability of year to year increases in value of services provided per physician, holding fees constant, is an important factor underlying the search for new ways of containing total expenditures on physicians services provided under publicly financed medicare programmes.

7.0 Overview

This chapter has presented an overview of changes in the number of physicians in Canada and in Nova Scotia over the past several decades. Further growth in the number of physicians in Canada and Nova Scotia has been projected to year 2006.

Three alternative projections were made for Nova Scotia, based on Scenarios I, II and III. Scenario I assumed that all net increases in numbers of physicians and FTEs would be derived

from the annual addition of 1785 new graduates from Canadian medical schools. An annual growth rate of 2.20% was projected, adjusted downward to 1.90%, due to the growth of the number of female physicians and of specialists relative to general practitioners.

Scenario II assumed that, in addition to 1785 new graduates per year from Canadian medical schools, the number of immigrant physicians would exceed the number of emigrant physicians by an average of 300 annually. This raised the growth rate of physicians in Nova Scotia to 2.57% annually, and that of MSI services in constant dollars to 2.27% annually.

Scenario III added the assumption that the value of services provided annually by physicians, holding fees constant, would increase by 1.0%. This raised the projected annual growth rate of the value of MSI services provided and utilized to 3.27%.

The chapter began by emphasizing the distinction between projections and estimates. For purposes of analysis, three sets of projections have been presented. These projections, together with other information presented in this study, should serve to better inform the reader of trends in physician manpower in Canada and in Nova Scotia.

The upper and lower bounds of these projections may well encompass the actual rate of increase in physicians and physicians services in Nova Scotia to year 2006. However, if this does not prove to be the case, it seems more likely that actual changes in numbers of physicians, and the value of physicians services provided (in constant dollars, exclusive of increases in MSI fees) will exceed the upper bound of Scenario III projections rather than fall below the lower bound of Scenario I projections.

Table 1
Nova Scotia Physician Supply Data, Various Sources, All Physicians

Year	Registered Phys. (PMB) Number	Change	Change (%)	Active Phys. (PMB) Number	Change	Change (%)	All Active Phys. (SMS) Old	New	Change	Change (%)
1970	1126			1014			849			
1971	1157	31	2.8	1070	56	5.5	886		37	4.4
1972	1193	36	3.1	1086	16	1.5	909		23	2.6
1973	1249	56	4.7	1164	78	7.2	938		29	3.2
1974	1318	69	5.5	1240	76	6.5	965		27	2.9
1975	1328	10	0.8	1214	-26	-2.1	1008		43	4.5
1976	1330	2	0.2	1211	-3	-0.2	1054		46	4.6
1977	1400	70	5.3	1267	56	4.6	1101		47	4.5
1978	1431	31	2.2	1295	28	2.2	1165		64	5.8
1979	1469	38	2.7	1321	26	2.0	1162		-3	-0.3
1980	1492	23	1.6	1337	16	1.2	1180		18	1.5
1981	1495	3	0.2	1342	5	0.4	1185	1285	5	0.4
1982	1558	63	4.2	1423	81	6.0	1238	1344	59	4.6
1983	1604	46	3.0	1475	52	3.7		1420	76	5.7
1984	1637	33	2.1	1501	26	1.8		1447	27	1.9
1985	1671	34	2.1	1511	10	0.7		1507	60	4.1
1986	1747	76	4.5	1582	71	4.7		1536	29	1.9
1987	1799	52	3.0	1623	41	2.6		1611	75	4.9

Year	Physicians Paid by MSI Number	Change	Change (%)	FTE Physicians Old	New	Change	Change (%)
1970	950			611.1			
1971	977	27	2.8	648.1		37.0	6.1
1972	1026	49	5.0	669.1		21.0	3.2
1973	1067	41	4.0	711.8		42.7	6.4
1974	1129	62	5.8	755.4		43.6	6.1
1975	1153	24	2.1	778.9		23.5	3.1
1976	1210	57	4.9	821.9		43.0	5.5
1977	1243	33	2.7	847.4		25.5	3.1
1978	1266	23	1.9	876.6		29.2	3.4
1979	1307	41	3.2	885.4	936.5	8.8	1.0
1980	1320	13	1.0	898.0	946.0	9.5	1.0
1981	1386	66	5.0	913.1	969.1	23.1	2.4
1982	1430	44	3.2		1031.4	62.3	6.4
1983	1459	29	2.0		1051.1	19.7	1.9
1984	1572	113	7.7		1094.5	43.4	4.1
1985	1653	81	5.2		1147.2	52.7	4.8
1986	1715	62	3.8		1191.5	44.3	3.9
1987					1231.7	40.2	3.4

NOTE: Data from 1970 to 1982 were obtained from "A Report on 1980 Physician Stocks and Requirements in Nova Scotia", by Murray G. Brown, July 1983. Other data were updated through various sources.

Table 2
Growth in Physician Stock
1987 TO 2006

Annual Compound Growth in Physician Stock	Canada	Nova Scotia
1. g^d = growth due to new registrations of Canadian graduates	2.99%	2.91%
2. g^f = net growth due to immigration of FTMG less emigration	0.00%	0.00%
3. g^a = loss due to deaths, retirements and other	0.71%	0.71%
4. g = net growth rate*	2.28%	2.20%

* $g = g^d + g^f - g^a$.

NOTES:

1. It is assumed that the number of Canadian medical school graduates will remain unchanged, from 1987 to 2006.

2. It is assumed that net immigration will be zero.

3. It is assumed that the attrition rate will be 0.71% per year, the average Canadian attrition rate from 1983 to 1987.

4. First the Canadian physician supply was projected. The Canadian population per physician ratio was calculated. The change in the Canadian population per physician ratio, from 1987 to 2006, was applied to the 1987 population per physician ratio for Nova Scotia. The population projections for Nova Scotia were combined with the population per physician ratio to obtain the projected supply of Nova Scotian physicians for 2006.

Table 3
Number of Active Civilian Physicians
Excluding Interns and Residents
Canada and Nova Scotia

	Canada		Nova Scotia	
	Physicians	Population/ Physician	Physicians	Population/ Physician
1970	25,657	836	915*	858
1971	27,439	791	955*	830
1972	28,606	767	980*	818
1973	29,944	743	1,011*	801
1974	31,108	726	1,040*	785
1975	32,561	703	1,087*	760
1976	33,754	686	1,137	732
1977	34,860	672	1,187	704
1978	35,433	667	1,256	669
1979	36,444	656	1,250	675
1980	37,287	650	1,272	666
1981	30,310	639	1,285	661
1982	40,081	616	1,344	636
1983	41,440	601	1,420	607
1984	42,400	592	1,447	600
1985	44,230	571	1,507	579
1986	45,594	559	1,536	571
1987	47,572	542	1,611	547
% Change	85.4	-35.2	76.1	-36.2
Annual Compound Rate of Change	3.7	-2.5	3.4	-2.6

Source: Health Personnel in Canada, 1987, Health and Welfare Canada; Physician Manpower Supply Situation in Canada, Health and Welfare Canada, August, 1981; A Report of 1980 Physician Stocks and Requirements in Nova Scotia, Murray G. Brown, July 1983.

* These numbers were revised upwards, by the Nova Scotia Manpower Committee, to reflect the new SMS data from 1976.

Table 4
Number of Active Civilian Physicians
Including Interns and Residents
Canada and Nova Scotia

	Canada		Nova Scotia	
	Physicians	Population/ Physician	Physicians	Population/ Physician
1970	31,166	689	1,032	761
1971	32,942	659	1,081	734
1972	34,508	636	1,147	698
1973	35,923	619	1,301	622
1974	37,297	605	1,320	619
1975	39,104	585	1,388	596
1976	40,130	577	1,404	593
1977	41,398	566	1,478	565
1978	42,238	560	1,539	546
1979	43,192	554	1,572	537
1980	44,275	547	1,588	533
1981	45,542	538	1,599	531
1982	47,384	521	1,636	522
1983	48,860	510	1,728	499
1984	49,916	503	1,720	505
1985	51,948	487	1,805	483
1986	53,207	479	1,831	479
1987	55,275	467	1,912	461
% Change	77.4	-32.2	85.3	-39.4
Annual Compound Rate of Change	3.4	-2.3	3.7	-2.9

Source: Health Personnel in Canada, 1987, and Canada Health Manpower Inventory, 1977, Health and Welfare Canada.

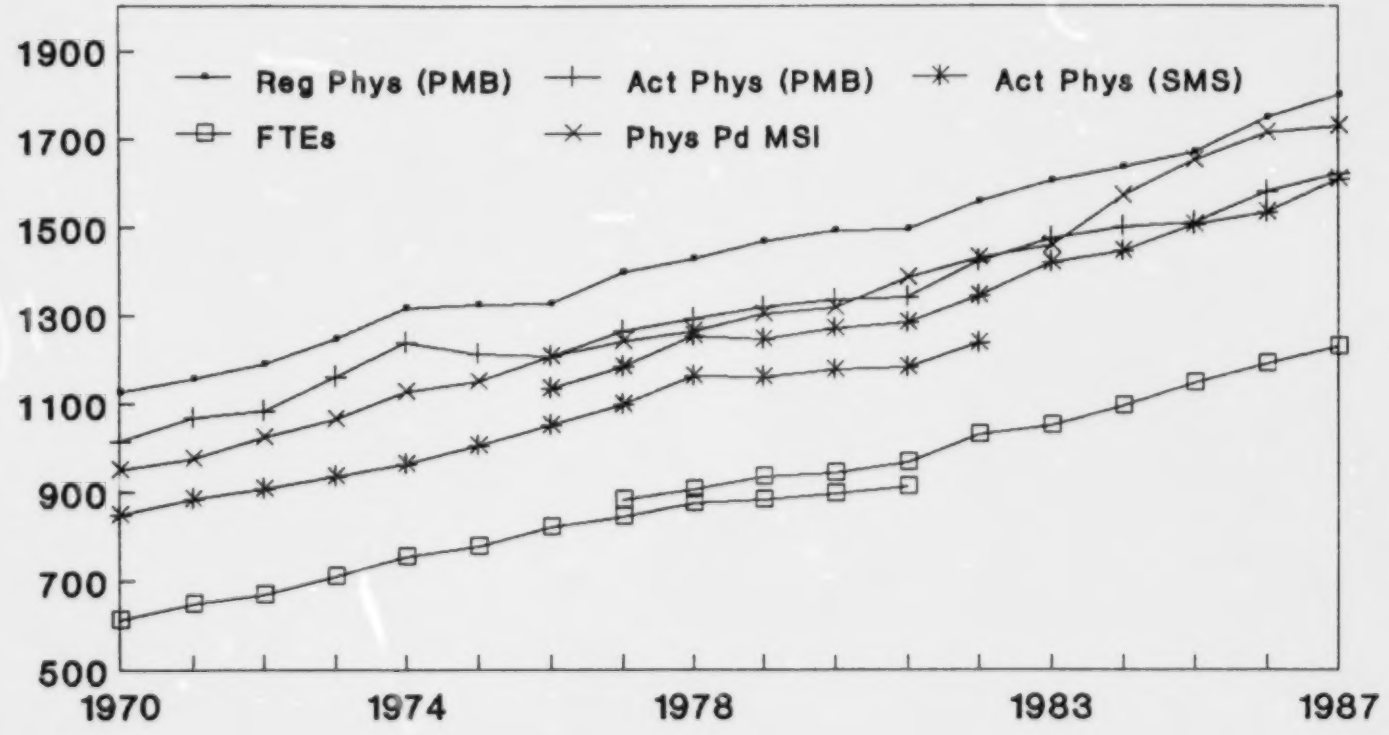
Table 5
Projected Increase in the Supply and Utilization of MSI Services 1987 to 2006

(A) Supply Side Changes	Whole Period	Annual
1. Growth in Physician Supply	51.2%	2.20%
2. Increased Proportion of Female MDs	-6.3	-0.34
3. Change GP/Specialty Mix	0.9	0.04
Combined Effects	45.8%	1.90%
(B) Utilization Side Changes		
1. Population Growth	8.1%	0.41%
2. Population Ageing	7.7	0.39
3. Growth in Utilization per Capita	30.0	1.10
Combined Effects	45.8%	1.90%

Table 6
Projections of Growth in Physicians and FTEs in Nova Scotia, 1987 to 2006: Three Scenarios

	Total Period Growth	Annual Compound Growth
SCENARIO I		
Assumptions:		
1. Cdn Med Sch Grads/yr = 1785		
2. Net MD (Immig - Emigration)/yr = 0		
3. Adjust for increase in Female MDs, and increase in Specialists/GP		
4. MSI Fee Index constant		
5. 0% growth/yr in Value of Serv's/MD		
Projections:		
(1) Growth in # Physicians	51.2%	2.20%
(2) Growth in # FTEs, #/Value of Services	45.8%	1.90%
SCENARIO II		
Assumptions:		
1. 1785 Cdn Med Sch Grads/yr		
2. Net MD (Immig - Emigration)/yr = 300		
3. Adjust for increase in Female MDs, and increase in Specialists/GP		
4. MSI Fee Index constant		
5. 0% growth/yr in Value of Serv's/MD		
Projections:		
(1) Growth in # Physicians	62.0	2.57%
(2) Growth in # FTEs, Value of Services	53.2%	2.27%
SCENARIO III		
Assumptions:		
1. 1785 Cdn Med Sch Grads/yr		
2. Net MD (Immig - Emigration)/yr = 300		
3. Adjust for increase in Female MDs, and increase in Specialists/GP		
4. MSI Fee Index constant		
5. 1% growth/yr in Value of Serv's/MD		
Projections:		
(1) Growth in # Physicians	62.0%	2.57%
(2) Growth in # FTEs, #/Value of Services	84.3%	3.27%

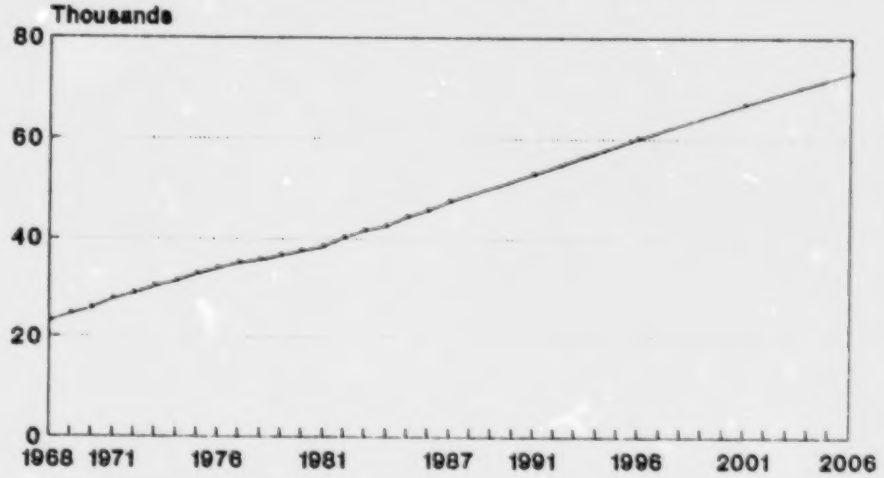
FIGURE 1: NOVA SCOTIA PHYSICIAN SUPPLY ALL PHYSICIANS, VARIOUS SOURCES 1970 TO 1987



Various Sources

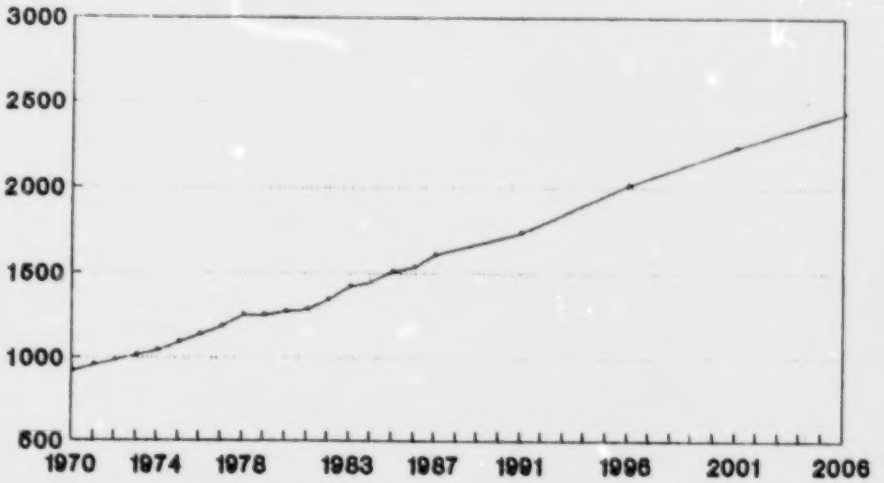
P1

FIGURE 2: ACTIVE CIVILIAN PHYSICIANS EXCLUDING INTERNS AND RESIDENTS, CANADA 1968 TO 1987, AND PROJECTED TO 2006



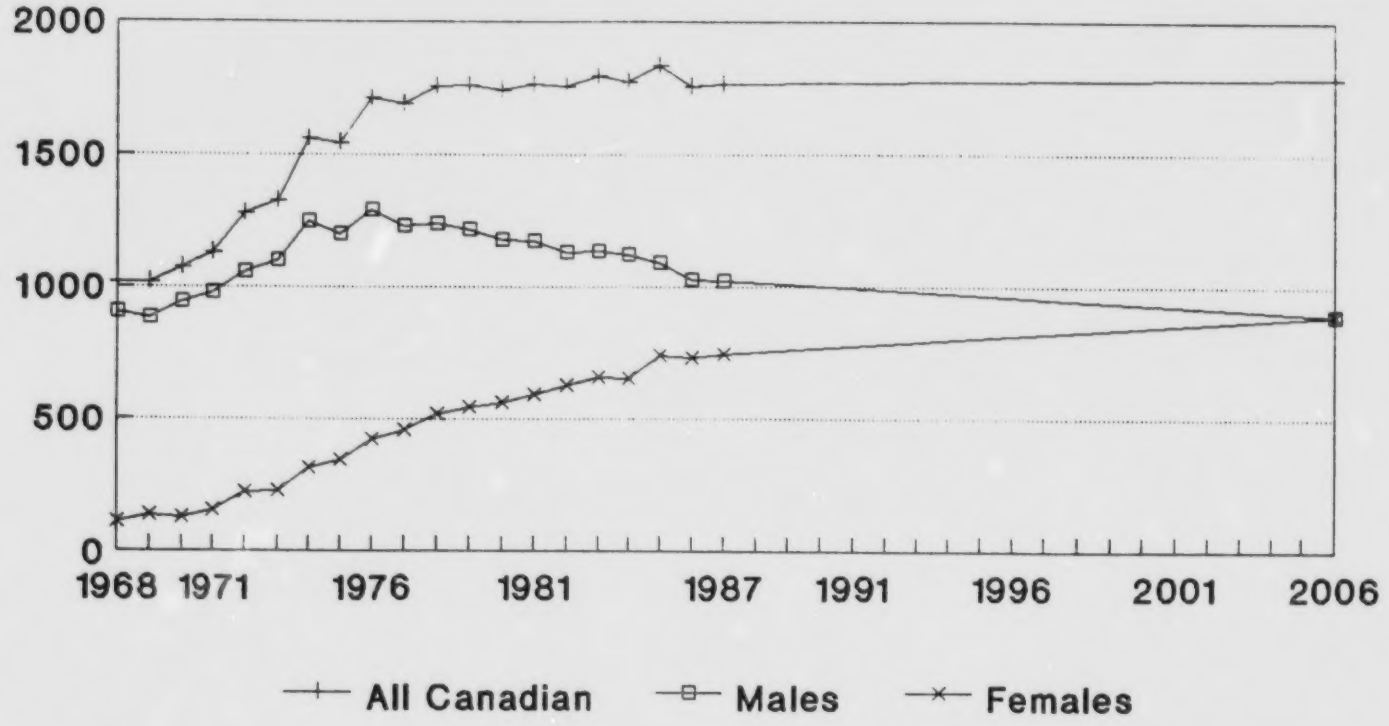
Source: Health Personnel in Canada, 1987
SMS, Health and Welfare Canada

FIGURE 3: ACTIVE CIVILIAN PHYSICIANS EXCLUDING INTERNS AND RESIDENTS, N.S. 1970 TO 1987, AND PROJECTED TO 2006



Source: Health Personnel in Canada, 1987
SMS, Health and Welfare Canada

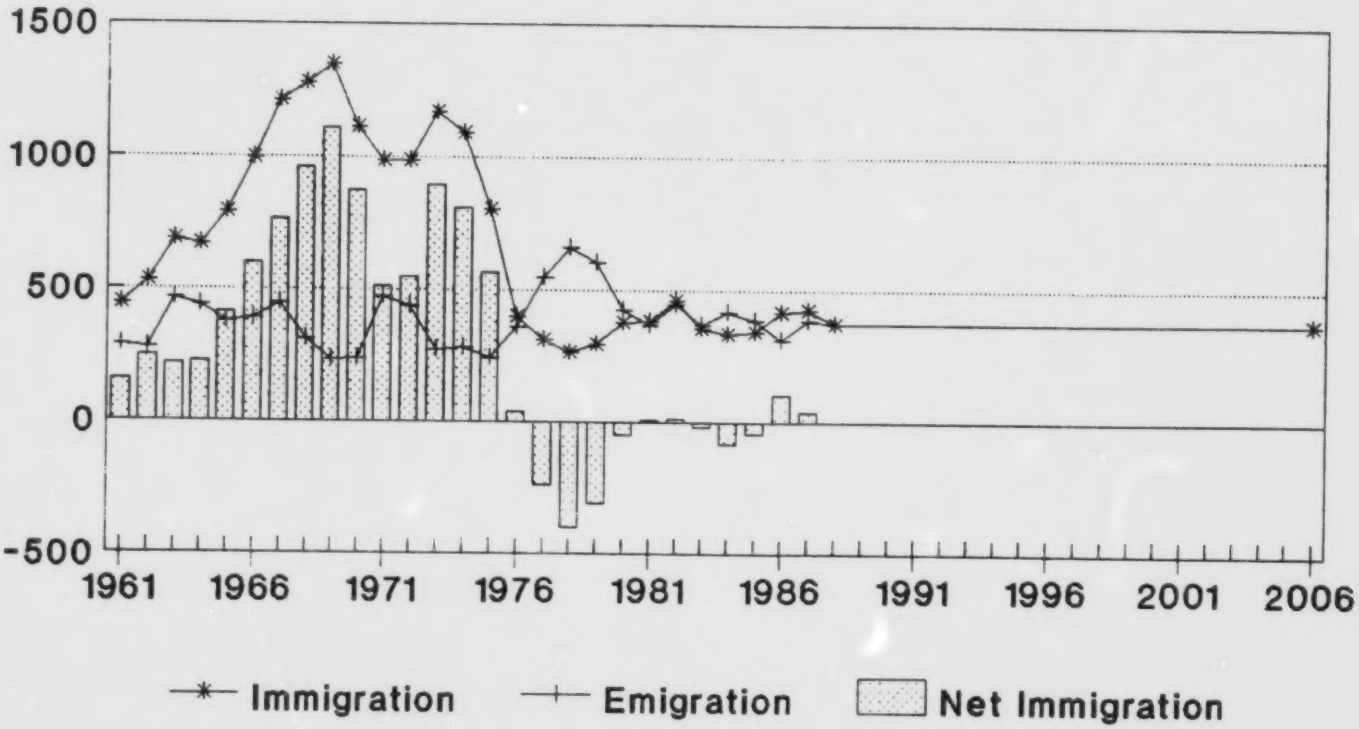
FIGURE 4: NUMBER OF GRADUATES FROM CANADIAN MEDICAL SCHOOLS 1968 TO 1987, AND PROJECTED TO 2006



Source: "Canadian Medical Education Statistics, 1988", ACMC

P2

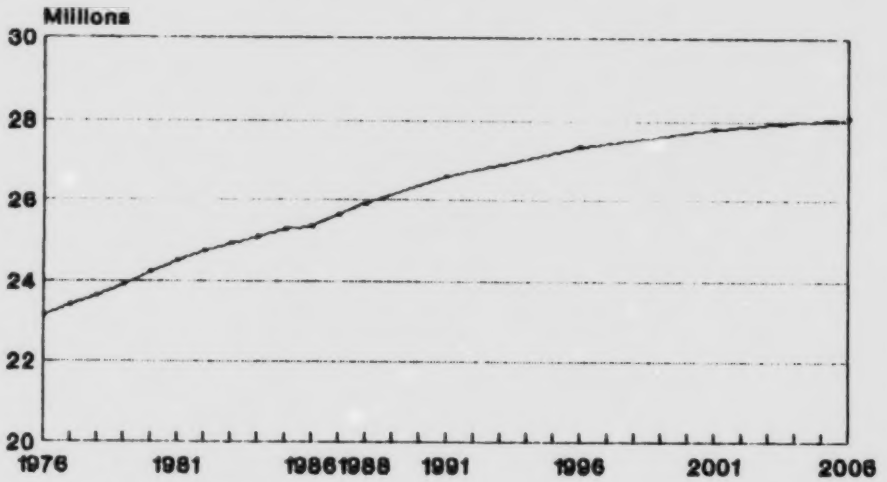
FIGURE 5: NUMBER OF IMMIGRANT AND EMIGRANT PHYSICIANS, CANADA 1961 TO 1987, AND PROJECTED TO 2006



Source: Various Health and Welfare Publications

P3

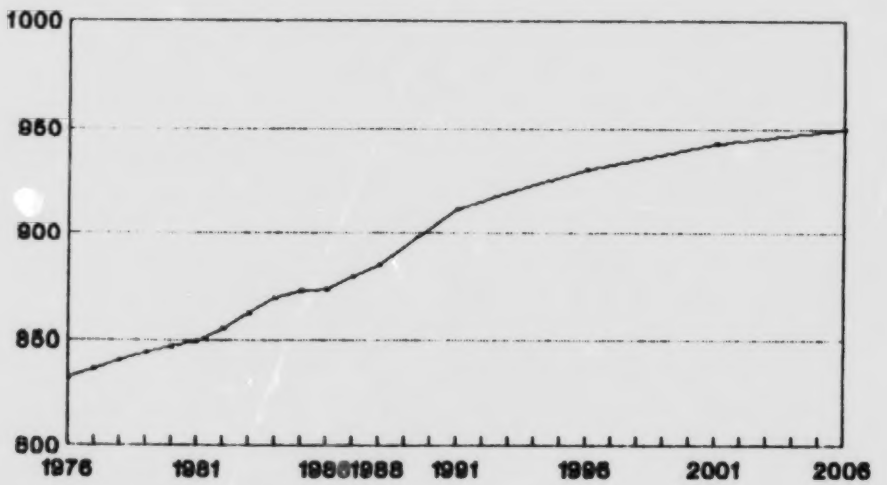
FIGURE 6: POPULATION TRENDS AND PROJECTIONS, CANADA 1976 TO 2006



Source: Statistics Canada Catalogue #91-002 and #91-520

P18

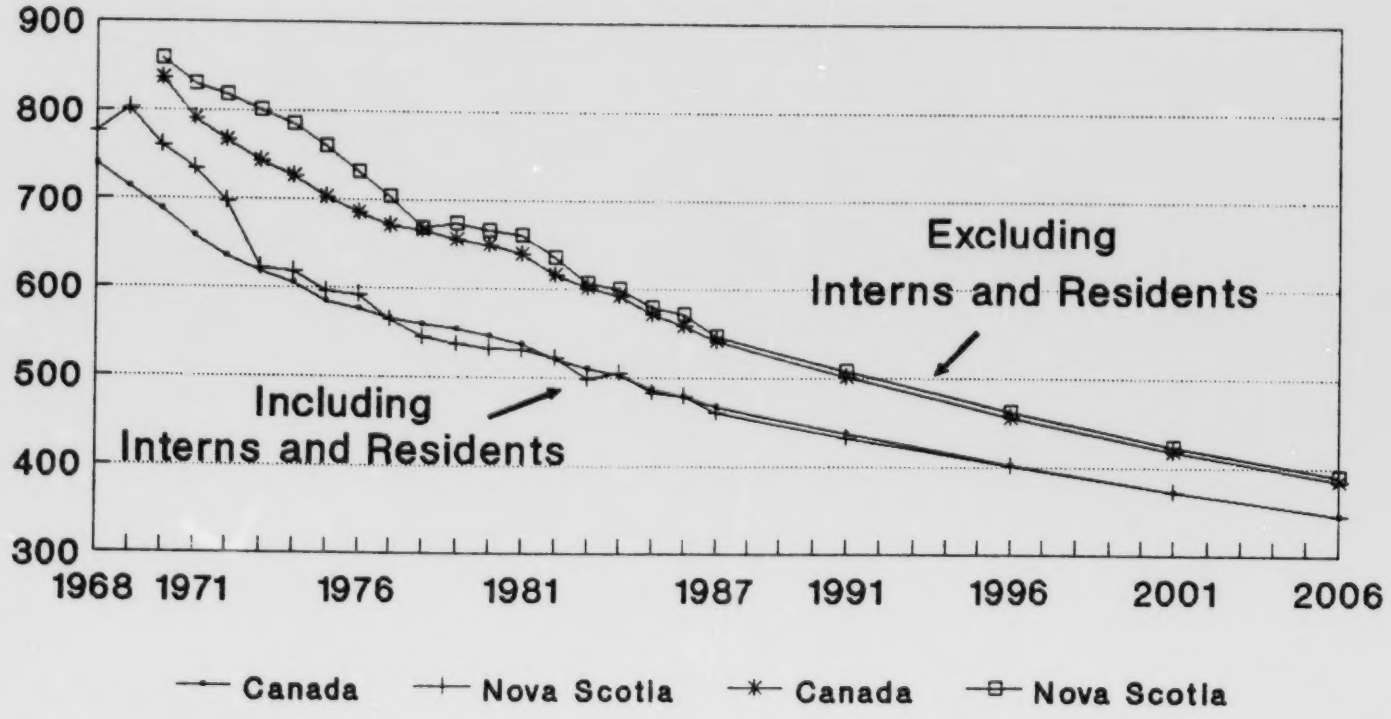
FIGURE 7: POPULATION TRENDS AND PROJECTIONS, NOVA SCOTIA 1976 TO 2006



Source: Statistics Canada Catalogue #91-002 and #91-520

P19

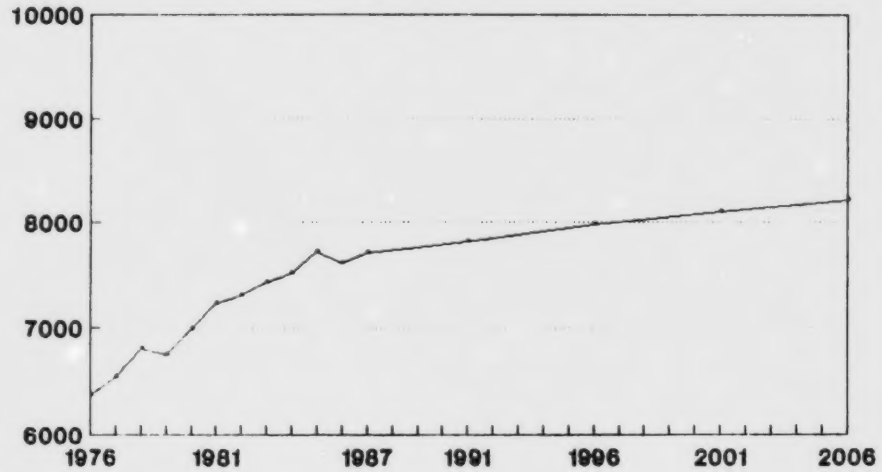
FIGURE 8: POPULATION PER ACTIVE CIVILIAN PHYSICIAN, CAN. AND N.S. 1968 TO 1987, & PROJECTED TO 2006



Source: Health Personnel in Canada, 1987
SMS, Health and Welfare Canada

P20

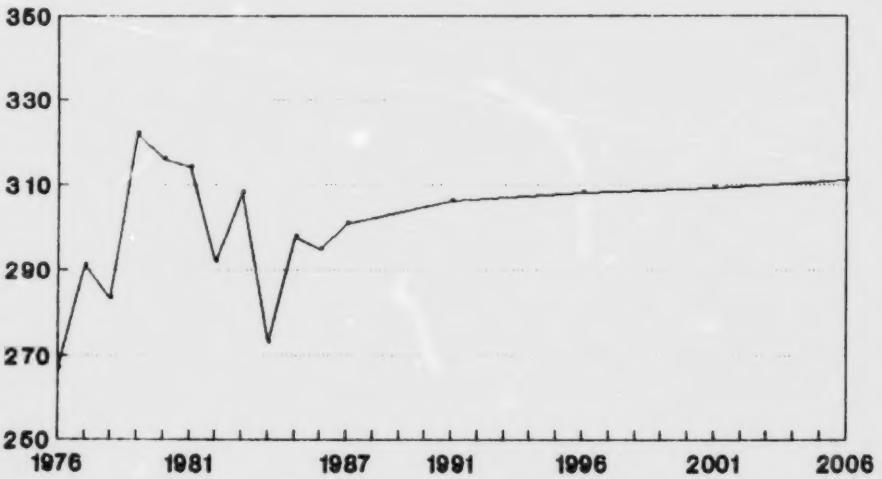
FIGURE 9: ACTIVE CIVILIAN INTERNS AND RESIDENTS, CANADA 1976 TO 1987, AND PROJECTED TO 2006



Source: Health Personnel in Canada, 1987
Health and Welfare Canada

P14

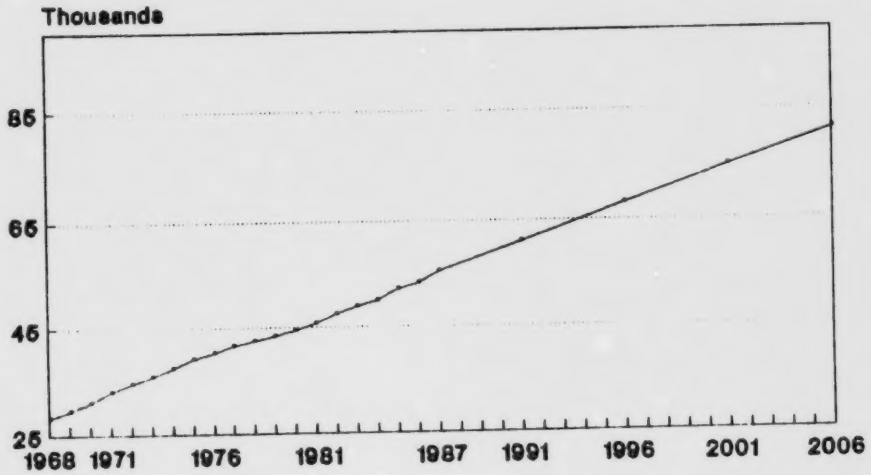
FIGURE 10: ACTIVE CIVILIAN INTERNS AND RESIDENTS, NOVA SCOTIA 1976 TO 1987, AND PROJECTED TO 2006



Source: Health Personnel in Canada, 1987
Health and Welfare Canada

P15

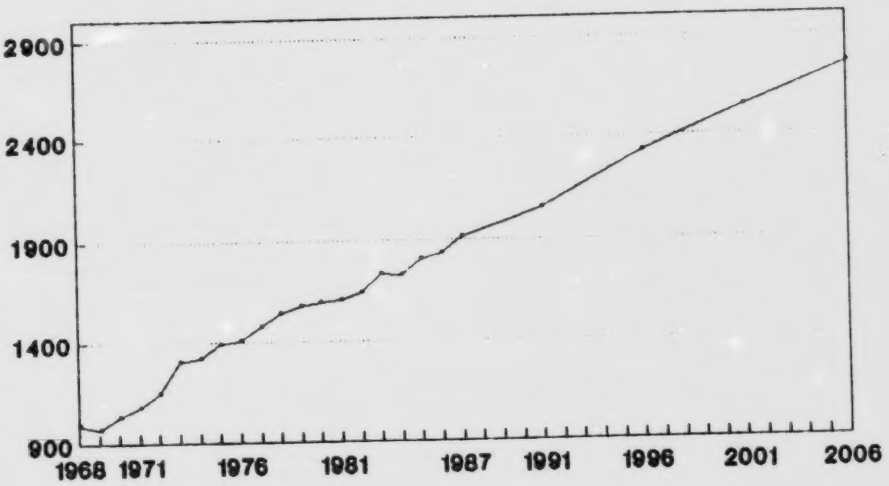
FIGURE 11: ACTIVE CIVILIAN PHYSICIANS INCLUDING INTERNS AND RESIDENTS, CANADA 1968 TO 1987, AND PROJECTED TO 2006



Source: Health Personnel in Canada, 1987
SMS, Health and Welfare Canada

P4

FIGURE 12: ACTIVE CIVILIAN PHYSICIANS INCLUDING INTERNS AND RESIDENTS, N.S. 1968 - 1987, AND PROJECTED TO 2006

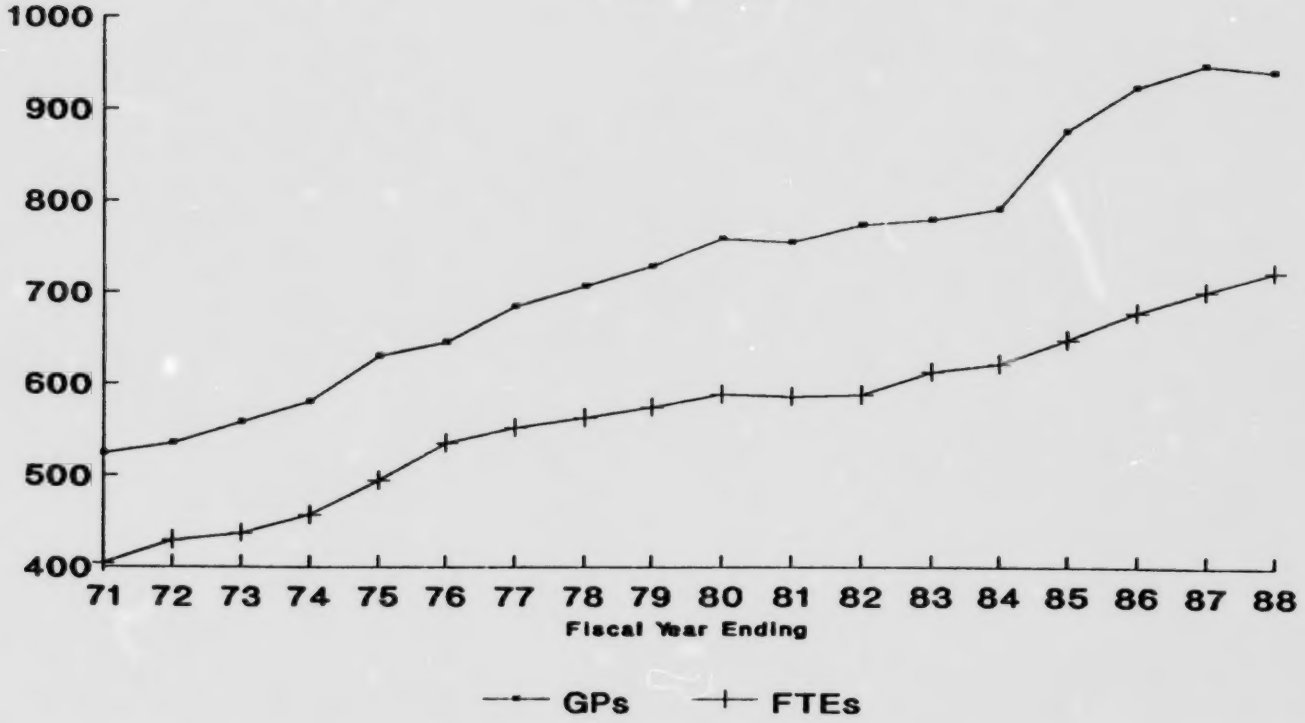


Source: Health Personnel in Canada, 1987
SMS, Health and Welfare Canada

P5

TABLE 13

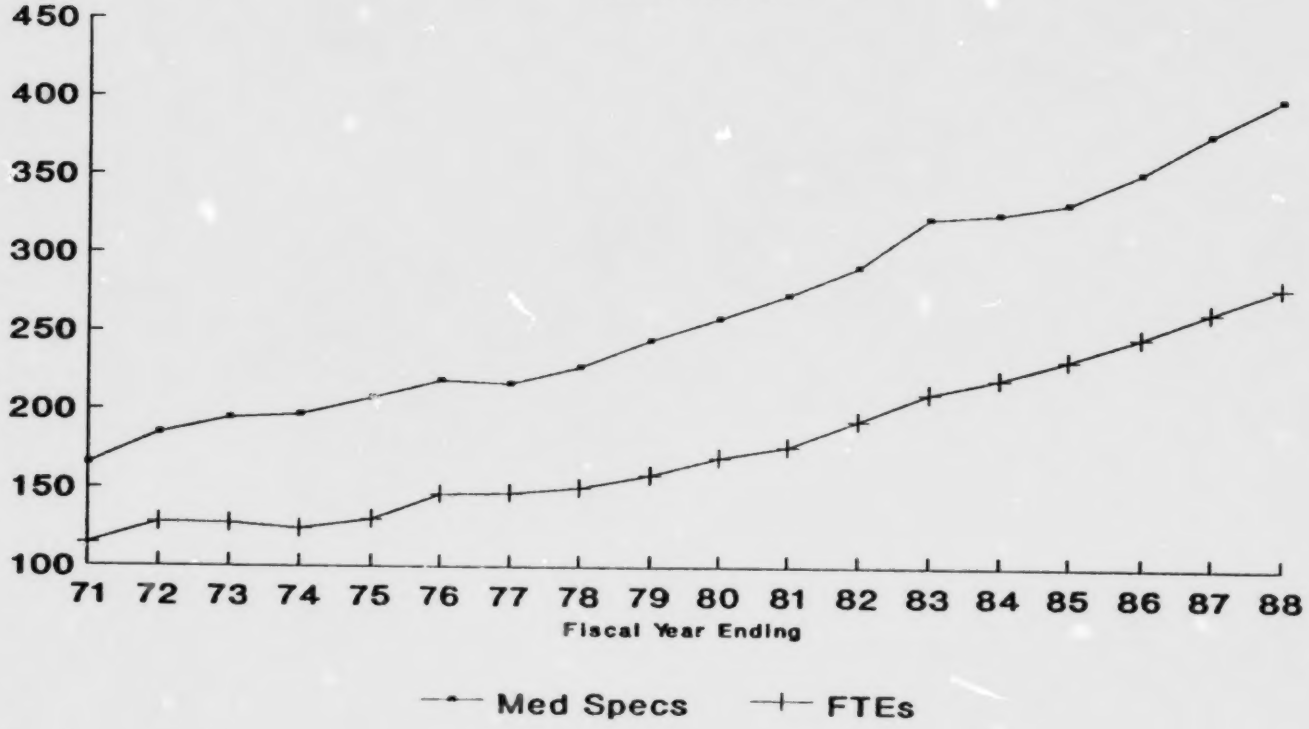
Growth of GPs and FTEs
1970-71 to 1987-88
NOVA SCOTIA



SOURCE: MARITIME MEDICAL CARE, INC.

TABLE 14

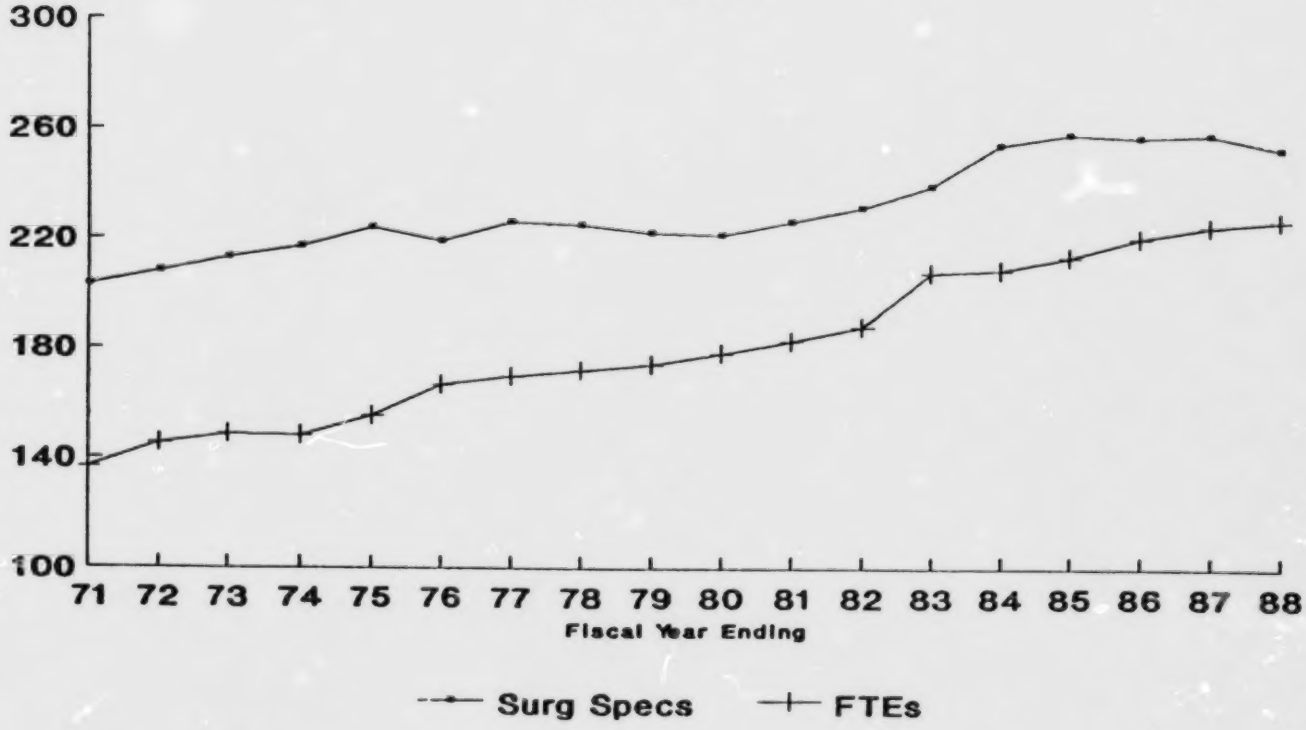
Growth of Medical Specialists and FTEs
1970-71 to 1987-88
NOVA SCOTIA



SOURCE: MARITIME MEDICAL CARE, INC.

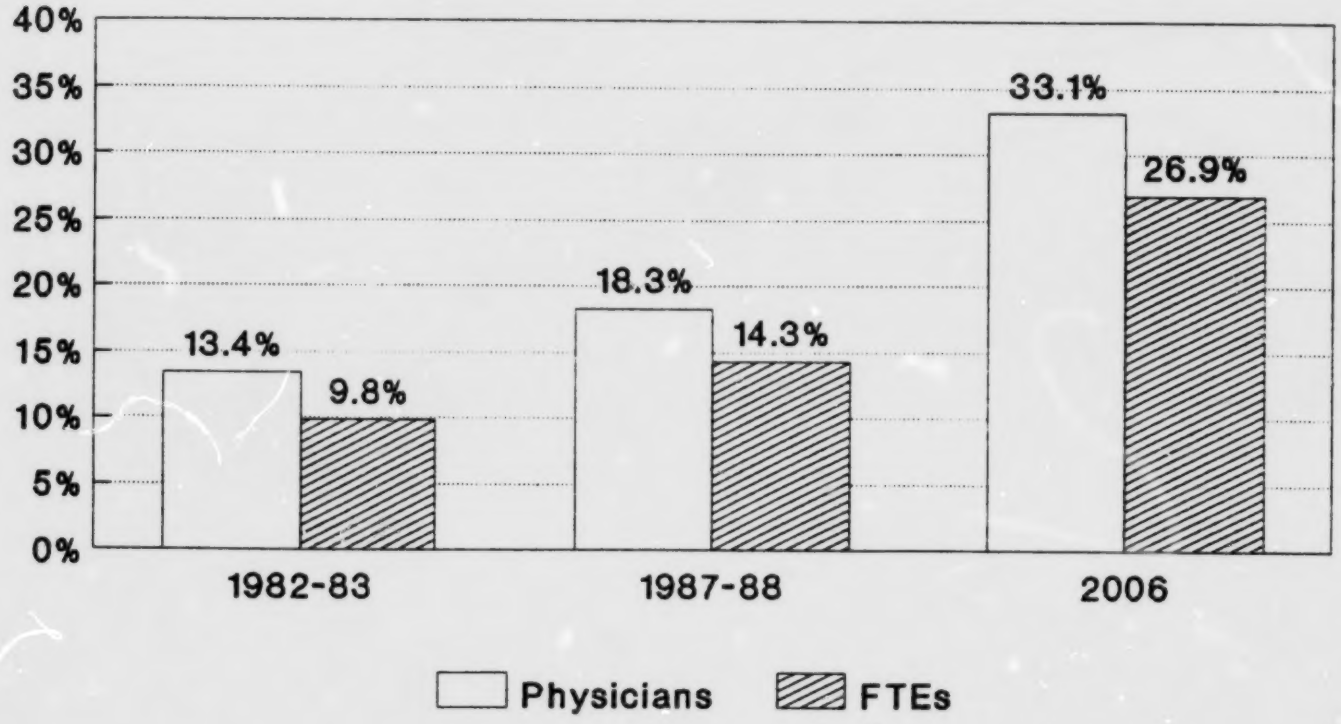
TABLE 15

Growth of Surgical Specialists and FTEs
1970-71 to 1987-88
NOVA SCOTIA



SOURCE: MARITIME MEDICAL CARE, INC.

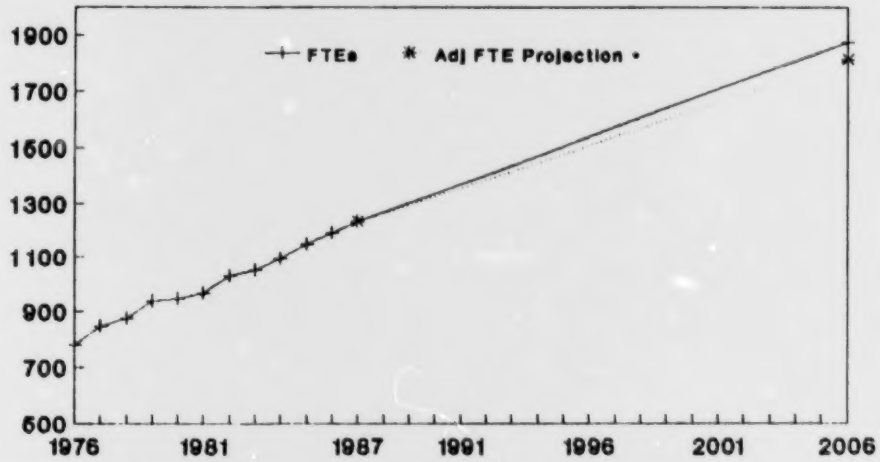
FIGURE 16: PERCENTAGE OF FEMALE FTEs AND PHYSICIANS, NOVA SCOTIA 1982-83, 1987-88 AND PROJECTED FOR 2006



Source: Maritime Medical Care Inc.

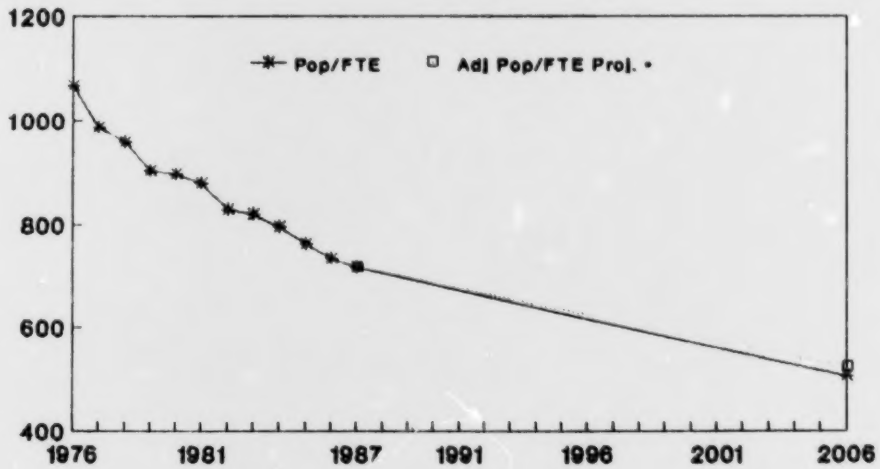
P16

FIGURE 17: NOVA SCOTIA FULL TIME EQUIVALENT PHYSICIANS 1976 TO 1987, AND PROJECTED TO 2006



Source: Maritime Medical Inc.
• Adjusted for the increased proportion of female MDs.

FIGURE 18: NOVA SCOTIA POPULATION PER FULL TIME EQUIVALENT PHYSICIAN 1976 TO 1987, AND PROJECTED TO 2006



Source: Maritime Medical Inc.
• Adjusted for the increased proportion of female MDs.

FIGURE 19: 1987-88 CONST. $ EXPENDITURE PROJECTIONS TO 2006, BASED ON PROJECTED GROWTH IN FTE PHYSICIANS

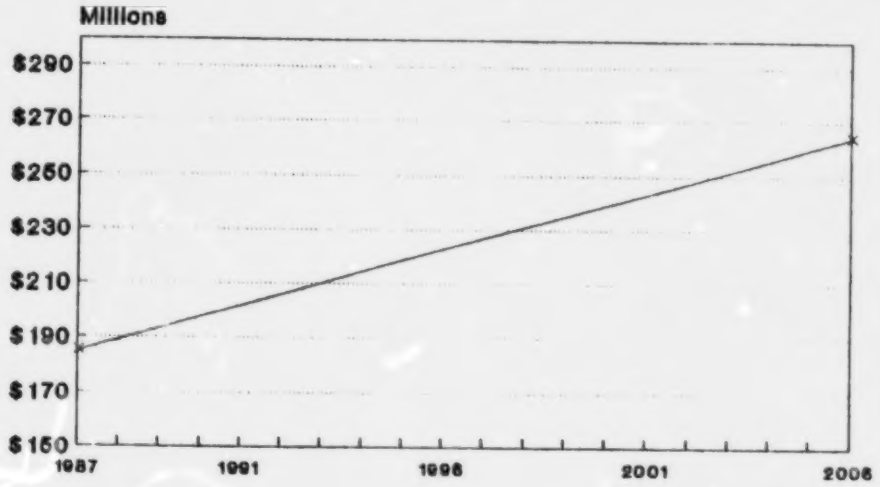
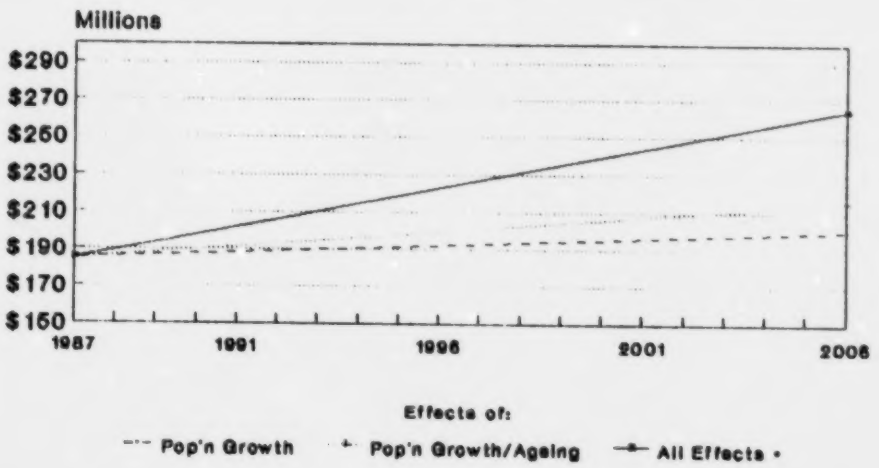


FIGURE 20: 1987-88 CONSTANT $ UTIL'N PROJECTIONS TO 2006, DUE TO POP'N GROWTH AGEING & INCREASED UTIL'N PER CAPITA



• Pop'n growth, ageing and increased utilization of MD services.

FIGURE 21: PROJECTED ANNUAL GROWTH IN MSI SERVICES, EXPRESSED IN 1987-88 $S DUE TO CHANGES IN PHYSICIAN SUPPLY

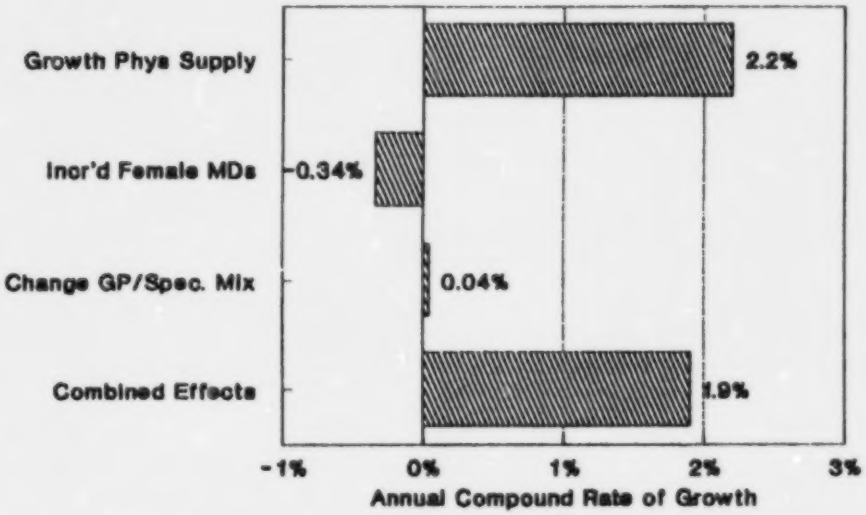
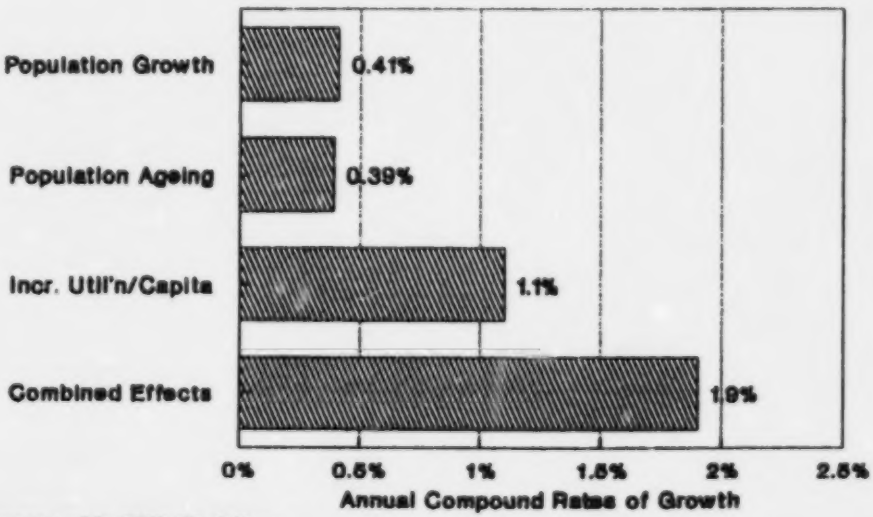


FIGURE 22: PROJECTED ANNUAL GROWTH IN UTIL'N OF MSI SERVICES, DUE TO POP'N GROWTH, AGEING & INCR'D UTIL'N/CAPITA *



* Expressed in 1987-88 dollars.

FIGURE 23: PROJECTIONS OF TOTAL GROWTH IN PHYSICIANS AND FTEs IN NOVA SCOTIA 1987 TO 2006: THREE SCENARIOS

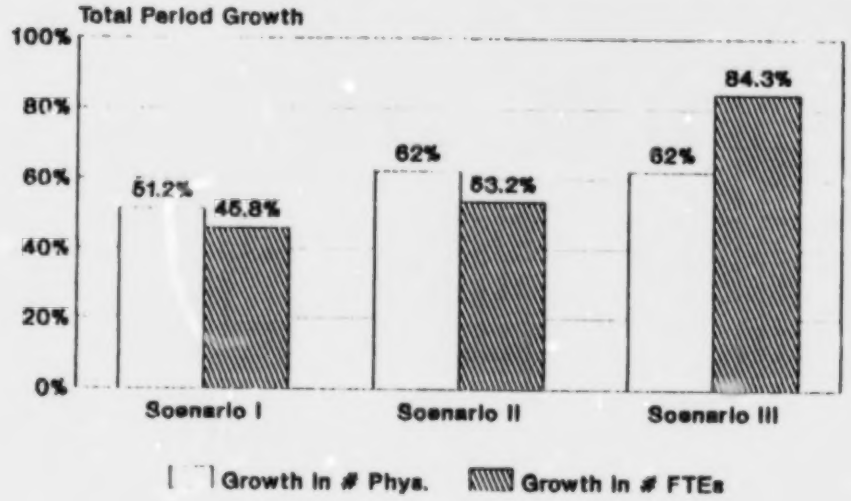
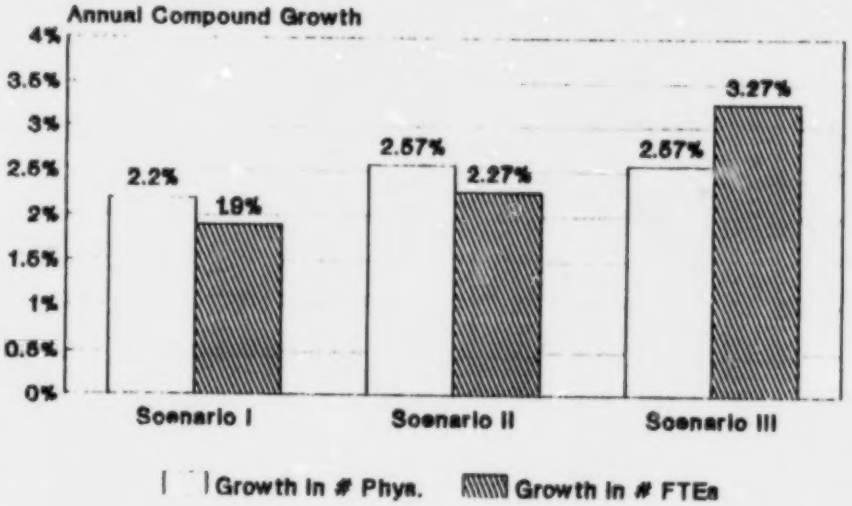


FIGURE 24: PROJECTIONS OF ANNUAL GROWTH IN PHYSICIANS AND FTEs IN NOVA SCOTIA 1987 TO 2006: THREE SCENARIOS



CHAPTER FOUR

NOVA SCOTIA PHYSICIAN SERVICES UTILIZATION DATA

Part A Utilization Analysis

1.0 Introduction

The effective and efficient use of limited health care resources has become the credo of planners and administrators in the health field. Over the past ten years, utilization analysis has gained in popularity as a management tool for decision-making. The techniques of utilization analysis permit the comparison of actual performance of the health care system to established performance goals.

2.0 Issues in Utilization Analysis

In its simplest form, utilization analysis has been defined as the application of a feedback regulation mechanism to the health care system [1]. Utilization analysis is comprised of three elements:

1. measurement of the performance of the health care system or a particular aspect of the system;

2. comparison of the performance to the goals established for that system;

3. a response component that involves the generation of signals which can be used to modify performance with policies or administrative actions.

The goal of utilization analysis is to bring the performance of the health care system in line with the desired goals for that system.

2.1 Establishing Standards

The most controversial aspect of utilization analysis is the setting of relevant standards or performance goals. It is necessary to develop a frame of reference in which the goals of the system can be compared to the measured performance. The contentious issue is the lack of consensus on how these standards should be established and what political or administrative stance these standards should reflect. Thus there are both technical and political reasons why standards are difficult to define.

In an ideal situation, the response of the feedback system is to develop policies to change or modify the "system" to attain the desired goals.

2.2 Defining Appropriate Utilization

In general, there are five major headings under which health care performance can be measured: 1) resources used, 2) services provided, 3) outcomes achieved, 4) population served and 5) a variety of morbidity and mortality (health status) indicators.

It remains that the determination of appropriate utilization is inherently a political process. To answer the question of "what is appropriate utilization?" one must consider several endogenous and exogenous factors: current acceptable medical practice, availability of resources, access to services, patient demand factors, physician induced demand factors, current medical fashion, technological advances, normative standards, government regulations, legal aspects of acceptable care, the method of remuneration for services, and the administrative structures within which medicine is practiced.

2.3 Drawing Valid Conclusions

Because of the problems associated with pre-determined "standards" or units of comparison, useful analysis and the drawing of valid conclusions is a process that is criticised for its subjectivity and political bias. Current utilization based research can do no more than identify trends, show direction of change, perhaps identify the direction and degree of correlation. Often, more questions are raised than can successfully be answered.

Given these weaknesses, utilization analysis can be a useful tool for identifying trends in the patterns of utilization of health services. The ability to draw conclusions from the analysis is a function of the validity and reliability (quality) of the data and the research methods employed. Often the research presents more questions than it purports to answer, though this in itself may be of benefit.

2.4 Use of Data in Manpower Planning

Unfortunately, there is almost no research available on the subject of applying utilization analysis to human resource planning. However, utilization of health services is the ideal standard for which manpower needs can be determined. Manpower requirements should, in theory, be determined by the need for a given type of service in an area, i.e., how many physicians of a given type do we need to deliver "X" number of services [2]. Unfortunately, utilization analysis is unable to completely answer the question of what is the true need of a given population, but current research initiatives are giving some insight into this area.

Utilization analysis provides a unique type of information that is useful to the manpower planning process. Utilization data should be viewed along with other information [3] to provide a complete picture of manpower supply and demand. As with most planning methods, no one information source, or planning tool, should dominate the decision making process. Rather, decisions should be made by cautious consideration of information from a variety of sources.

3.0 Approach Adopted for this Study

This study chose to approach the problem of utilization analysis by using per capita expenditure as a measure of utilization. Per capita expenditure (in constant dollars) for physician services is the product of both the utilization of physician services and the level of fees paid.

Part B: Total Health Care Expenditures by Province

1.0 Total Health Care Expenditures by Province

Total health care expenditure includes expenditure on institutional and related care (hospitals, home care, etc.), professional services (physicians, dentists, and other professional care), drugs and appliances (prescribed and non-prescribed drugs, eyeglasses, etc.), and other health care (administration costs, public health, etc.). In 1985, $1,430.56 per capita was spent on health care in Nova Scotia (see Table 1 and Figure 1). This is slightly less than the Canadian average of $1,543.26 per capita. Nova Scotia ranked seventh highest, in terms of per capita expenditure on health, in both 1984 and 1985.

In four of the ten provinces (Newfoundland, Saskatchewan, Alberta and British Columbia) the percentage of health care expenditure paid by the provincial government, from 1984 to 1985, increased slightly, while in the other six provinces it decreased. In Nova Scotia the percentage paid decreased slightly from 70.4% in 1984 to 68.6% in 1985 (Figure 2). The average for Canada remained relatively stable over these two years.

The percent of Nova Scotia's provincial GDP going to health care was 11.2% in 1984, this compares to 8.4% for Canada (Figure 3). The percentage in Nova Scotia is the lowest in the four Atlantic provinces.

Table 2 summarizes the total health care expenditure per

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[3]. Refer to the document "Physician Population Ratios" for a more complete discussion of manpower planning methods.

capita, by category, for the ten provinces. Hospital expenditures per capita represent 41 percent of total health care expenditures per capita in Canada, and 46 percent in Nova Scotia. Physician services account for the second highest category of expenditure in all provinces. For Canada, 1985 expenditure on physician services was 16.0 percent of total health care expenditure, while in Nova Scotia physician services accounted for 14.2 percent of total health care expenditure (Table 3 and Figure 4).

2.0 Trends in Nova Scotia and in Canada

Nova Scotia per capita expenditure has grown faster than most provinces (Table 4 and Figure 5) with the result that Nova Scotia's rank among the provinces has moved from sixth in 1972-73 to fourth or third in recent years. As a percent of median expenditure per capita, Nova Scotia has moved from 94.5% in 1972-73 to 120.1% in 1985-86.

2.1 Inter-Provincial Comparisons with Standardized Fees

Per capita expenditure for physicians' services is the product of both the utilization of physician services and the level of fees paid. It is possible to standardize for different fee levels among the provinces in the case of fee-for-service payments to all specialties except the technical specialties of pathology and radiology.

Per capita expenditure in 1985-86 standardized to Nova Scotia fee levels (Table 5) indicates a lower variation between Nova Scotia and the median than shown in Table 4. This is due to the fact that Nova Scotia fee levels have grown more rapidly than other provinces, and in 1985-86 were third highest among the provinces.

Nova Scotia expenditure exceeds the median in the case of general practitioners (G.P.'s), surgical specialists and all physicians. It is somewhat less than the median in the case of medical specialists (Figure 6).

Table 5 also compares physician full time equivalents per 100,000 population during the 1985-86 fiscal year. Results are quite similar to the per capita expenditure comparison, although there are somewhat large disparities between Nova Scotia and the median in the case of surgical specialties and all physicians, while disparities are slightly less in the case of G.P.'s and medical specialists (also see Figure 7).

At this stage in the analysis of interprovincial data it is not possible to standardize for the actual type of practice. It is known that a number of G.P.'s conduct specialty type of practices. Within the major categories of medical and surgical

specialties there is also a considerable leeway for the substitution of the services of one specialty for another. For example, specialists in general surgery and internal medicine may often carry out types of care that would be specific to other specialties or to general practice. In these instances the availability of other specialists is often important in determining the mode of practice of the more general specialties or of general practitioners. For this reason, comparisons of physician supply for any one specialty in isolation may provide results that are misleading. The three general categories of G.P.'s, medical specialists and surgical specialists provide a more stable basis for comparison.

2.2 Per Capita Services

The National Grouping System (NGS) of Health and Welfare is used to compare physicians' services, by type of service, in Nova Scotia with the 10 province median, from 1981-82 to 1985-86. Several adjustments are made to physicians' services, by NGS, to make the data more comparable between the provinces. "Adjustments common to all jurisdictions are:

A Only payments are included. This is used most frequently when two or more surgical procedures are performed at the same time;

B New service counts are calculated based upon a fee for a standardized service. This is generally done in the case of such time-based services as psychotherapy and detention;

C Services and payments for a specific fee code are divided between two categories because the fee code was refined during the year and each definition was applicable to a different category; and

D Same as adjustment B except separate fees are entered for General Practitioners and Specialists.

Also common to most provinces and the territories, the special adjustment for obstetrical services ensures that the services counts and payments are attributed to the appropriate visit and procedure categories."[3] As well, other province specific adjustments are made separately. Caution should be taken when comparing the data because some discrepancies may still arise. For example, not all provinces pay for radiology and laboratory services in the same way, making these services the least comparable across provinces.

Table 6 and Figures 8 - 22 summarize physicians' services per capita for Nova Scotia and the average for the ten provinces.

Nova Scotia's services per capita were above the Canadian average for: home/emergency, major surgery, surgical assistance, other services, and consultations (1985-86 only for consultations). The services per capita for Nova Scotia were below the Canadian average for: office visits, hospital visits, minor surgery, obstetrical services and all services. Note that Nova Scotia pays for most laboratory and diagnostic services through the hospital insurance plan, therefore comparisons between these groups is not appropriate. If these services are excluded when calculating total services, Nova Scotia services per capita are above the Canadian average, in fact Nova Scotia moves from a ranking of 7/8 to 2nd highest of the 10 provinces.

Nova Scotia's services per capita grew noticeably faster than Canada's services per capita for: consultations (over twice as fast); home/emergency; minor surgery; obstetrical services (actually decreased in Canada, while increasing in Nova Scotia); and anaesthesia (twice as fast in Nova Scotia).

3.0 Growth of Constant Dollar Expenditure

Nova Scotia MSI expenditures are budgeted for the fiscal year, which covers the period April 1 to March 31. Budget amounts apply to services performed during the fiscal year. Most published data on expenditure pertain to payment actually made during the fiscal year, however. Data prepared on a date-of-service basis (Table 7) show that constant dollar expenditure per insured person has increased at an annual average rate of 3.1%, from 1970-71 to 1987-88. In the five years since 1982-83, the average annual rate of increase has been higher, at 3.4%.

Constant dollar expenditure was calculated using an index of physician fee increases, rather than a more general measure such as the Consumer Price Index. The fee index has the advantage of being specific to fee-for-service expenditure, and therefore allows a measure of real output over time.

The same index can be used to convert expenditure to 1970-71 dollars (Table 7) or to 1987-88 dollars. The latter conversion has been done in order to compare the trend in output per physician full time equivalent (F.T.E.). During the last ten years, output has grown slightly faster than the number of F.T.E.'s, with output per F.T.E. increasing by 3.8% over the period (Table 8 and Figure 23). These data do not explain why utilization grew at rates almost identical to the rate of growth in F.T.E.'s, but do serve to illustrate the close relationship between the two.

3.1 Specialty Specific Utilization

General practitioners' share of total expenditure decreased from 1975-76 to 1987-88, medical specialists' share increased, while surgical specialists' share stayed the same (Table 9). This change in expenditure share results from the fact that medical specialists' utilization increases, from 1975-76 to 1987-88, were higher than that for surgical specialists and general practitioners, and general practitioners' utilization increases were the lowest.

Increases in total expenditure are equal to increases in utilization and increases in tariffs (physicians' fees). While average annual increases in utilization were higher from 1981-82 to 1987-88, and average annual tariff increases were higher from 1975-76 to 1981-82, average annual increases in total expenditure were about the same in each of these periods (Table 10). "There is a temptation to interpret these data as indicating that utilization has increased to compensate for lower rates of tariff increases. Such an interpretation, however, would ignore the fact that major determinants of utilization were also changing at different rates during the two periods - in particular, the growth of the physician population and the growth and ageing of the insured population."[4]

3.2 Utilization by Area

This section concentrates mainly on Halifax, Cape Breton and Kings counties, since MSI payments to these counties account for over two-thirds of total payments. From 1975-76 to 1981-82 growth rates in utilization for Halifax and Kings Counties were above the provincial average, while Cape Breton's utilization growth rates were below the average (Table 11). The increase in Kings County can no doubt be attributed to increases in medical personnel and facilities at Valley Health Services. Between 1982 and 1988, utilization of physicians' services increased more rapidly than the provincial average in Halifax, while rates of growth in Kings and Cape Breton were below the average.

Utilization of physicians' services in the rural Cape Breton area increased at a rate below the provincial average, while that in the rural area of Halifax County was above the average. Data show that almost all of the utilization increases in the Halifax rural area can be attributed to increased utilization of general practitioners' services.

Utilization of general practitioners' services in Halifax/Dartmouth decreased (4.4%) from 1975-76 to 1981-82, while increasing substantially from 1981-82 to 1987-88 (37.3). Sydney's utilization rates, for general practitioners, increased in both of these periods, but at a much higher rate in the second

period (9.7% and 27.5%, respectively), while Kings County's utilization of G.P.s increased at a slower rate in the second period (36.0% and 9.2%, respectively).

Utilization of medical specialists increased more rapidly from 1981-82 to 1987-88 than from 1975-76 to 1981-82 in Halifax/Dartmouth and Sydney, while the opposite was true for Kings County. In both Kings and Sydney utilization of surgical specialists' services increased faster from 1975-76 to 1981-82 than from 1981-82 to 1987-88, with the opposite being true for Halifax/Dartmouth.

4.0 Age Specific Utilization and Effects of Population Growth and Ageing

Figure 24 shows the age distribution of the insured population for 1987-88. Age-sex specific expenditure per capita is shown in Table 12 and Figure 25 for fiscal 1987-88. The life cycle trend in the utilization of physician's services shown there is similar to trends observed in other jurisdictions. Demographic trends are producing a population with fewer children and more senior citizens. The latter age group accounts for the highest rates of age-specific expenditure. To determine the effects of population growth and ageing on expenditure for physicians' services, it is necessary to account for these demographic changes, and also to take into account the different rates of change in per capita utilization across age groups. The trends in population and expenditure per capita during the last five years are shown in Table 13.

Persons at both extremes of the age distribution have above average rates of growth in utilization. The reasons for this are not clear, but could reflect changes in treatment possibilities or changing social/medical perceptions of the appropriate levels of care for children and seniors (the third possible explanation, that these age groups are becoming sicker, seems unrealistic-although it could be argued that senior citizens may be enjoying greater health. If so, it is beyond the scope of this report to determine if improved health is a result of increased utilization of medical care, or of other factors involving nutrition, lifestyle and social support services).

Although it is not possible to predict whether age specific utilization rates will continue to diverge in future years, it is possible to determine the effects of population growth and ageing during the recent past and to predict the expected effects of future demographic changes. This may be done by projecting present per capita expenditure onto past or future populations. In Table 14 and Figure 26 an example is shown for the six years from 1982-83 to 1987-88. A breakdown of the joint effects of population growth and ageing during these six years is shown in

Table 15 and Figure 27.

5.0 New Procedures and Technology

New procedures performed by physicians can be divided into three categories:

"a. new treatment not possible in the past, e.g. heart transplants;

b. services that supplement existing modes of treatment, e.g. many diagnostic treatments; and

c. replacement of existing technology, e.g. lithotripsy."[4]

Categories a and b are expected to lead to increased utilization, while c may have the potential to decrease expenditures if efficiency in the system is gained.

"Medical consultants from Maritime Medical Care and The Nova Scotia Medical Society reviewed a list of all new procedures since 1969 and classified them according to whether or not they were 'Add On' procedures, in the sense that they represented new treatment which would increase utilization."[5] They estimated that new procedures increased expenditure on physicians' services by 3.27% (0.54% per year) from 1981-82 to 1987-88. Increases in physician expenditure due to new procedures, from 1975-76 to 1981-82, were estimated to be 0.08% per year.

6.0 Utilization by Type of Service

Most of physicians' services in Nova Scotia are performed in physicians' offices, 50.8% in 1987-88. Physician office visits accounted for 4,001 visits per 1,000 population in 1987-88 (Table 16). Hospital visits represent the next highest type of physician service that is utilized, 12.9% of total physicians' services per 1,000 population in 1987-88.

From 1980-81 to 1987-88, physicians' services per 1,000 population increased for all types of services, excluding home visits, hospital visits and eye examinations, which decreased 28.5%, 5.1% and 24.3%, respectively. The highest growth was for I.C.U. services, which increased from 34 to 56 per thousand (or 64.7%), followed closely by consultations (271 to 438 per 1,000,

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[4] Op. cit. Maritime Medical Care Inc (July 13, 1989). p.46.

[5] Op. cit. Maritime Medical Care Inc. (July 13, 1989). p. 46.

or 61.6%) and psychiatric services (122 to 191 per 1,000, or 56.6%).

Over the past several years the number of specialists, as well as the number of sub-specialists categories, have been increasing. Because of these trends it is possible to have a number of specialists involved in a particular patient's case. Data show that a greater proportion of patients are receiving more than one consultation. The proportion of the population receiving more than one consultation increased from 25.2% in 1975-76 to 33.2% in 1987-88.

As noted earlier total services per 1,000 population increased from 1981-82 to 1987-88. Table 17 and Figure 28 show the distribution of the insured population by the number of services received between 1981-82 and 1986-87. The proportion of the population receiving less than 5 services has been decreasing, while the proportion receiving 5 plus services have been increasing.

In 1982-83, 25.3% of the population received 5-10 services, while 19.0% received 11 plus services; in 1986-87 these increased to 26.9% and 21.4%, respectively. In 1986-87 almost half of the insured population received over 5 physician services per year.

7.0 Utilization by Area of Patient's Residence

Tables 18 and 19 (and Figures 29-31) address the question of inter-regional disparities with respect to the utilization of physicians' services. Table 18 is from Maritime Medical Care's Annual Statistical Tables, and shows expenditure for both general practitioners' and specialists' services by patient county of residence. The last line of the table, entitled Variability, shows the coefficient of variation (the standard deviation divided by the mean). As would be expected, variability is greater for specialists' services than for general practitioners' services. The variability in total per capita expenditure is no greater than the variability for general practitioners' services, indicating that substitution effects exist between general practitioners and specialists.

The data in Table 19 are aggregated into regions that correspond reasonably well to the Provincial Department of Health hospital regions. The table focuses on per capita expenditure for specialists' services, as concern about the physician requirements of regional hospitals may be, primarily, a concern about the availability of specialists. The data show that, excluding Halifax-Hants, most regions are reasonably close to the provincial average per capita expenditure for specialists services. The lowest area, Antigonish-Guysborough, is something of an unusual case. This region has a relatively high number of

specialist full time equivalents. As can be seen from the previous table, Antigonish county has a lower per capita expenditure for specialists' services than the rural county of Guysborough.

Cape Breton and the Valley regions have the highest per capita expenditure for specialists' services outside Halifax-Hants. Cape Breton appears to be reasonably self-contained, with only 25.9% of specialists' services received in Halifax County. The Valley area, on the other hand, has expenditure for specialists services in Halifax roughly equivalent to the overall average for regions 1 to 8.

The data in these tables suggest that availability of specialists will influence the extent to which the population uses specialists' services, but availability is not sufficient to explain all observed differences. This is not surprising, in view of the fact that there are no major obstacles to referrals or patient mobility within the province. The Valley and Cape Breton experience suggests that the local availability of specialists will not necessarily divert care from tertiary care centers; but local availability combined with distance may lead to a replacement effect.

The data also indicate that there is a substitution of G.P. services for specialty services in areas where specialists are not available (e.g., anaesthesia). In Halifax County the opposite appears to occur, i.e., specialists' services are substituted for G.P.s' services. This is particularly true of the Metro area where G.P.s do not have admitting privileges to the hospitals.

8.0 Metro - Non-Metro General Practitioner's Services

Health and Welfare's National Grouping System (NGS) provides data on physicians' services by category. There are 120 categories, of these 97 had data recorded for Nova Scotia in 1987-88. These categories are combined into 16 groups. A listing of the groups and categories can be found in Table 20.

From 1982-83 to 1987-88 total G.P. services increased 16.1% (Table 20). Over this period of time Metro G.P. services increased twice as fast as Non-Metro G.P. services, 26.5% and 11.8%, respectively. Services increased for most categories, the only decreases over time were for major surgery, anaesthesia and miscellaneous services. As well hospital care days, obstetrical services and major assessments decreased for Non-Metro G.P.s.

Increases in Metro G.P. services were greater (or decreases less) than Non-Metro G.P. services for 13 of the 16 groups (diagnostic/therapeutic radiology and radioisotopes were not

comparable, in terms of percentage increases, since there were no services recorded for Metro G.P.s in 1982-83). Of the 97 categories for Nova Scotia, services for Metro G.P.s increased faster (or decreased slower) for 53 categories, 1 category had the same percentage increase, while increases were lower (or decreases higher) for 30 categories. Note that 11 categories were not comparable because no services were recorded in 1 or both years, for 1 or both sets of G.P.s.

Office visits in category 3, i.e., other assessments[6], are the major type of service for both Metro and Non-Metro G.P.s. For Metro G.P.s these office visits were 71.3% of total services in 1987-88, and for Non-Metro G.P.s they were 56.9%. The next important item for Metro G.P.s are individual psychotherapy/ counselling, 3.8% in 1987-88. While for Non-Metro G.P.s the next important item is special calls with an additional patient, 11.3% of total services in 1987-88. These proportions illustrate some of the differences between Metro G.P. practices and Non-Metro G.P. practices.

The finding that Nova Scotia's Metro G.P. services have increased faster than Non-Metro G.P. services is not unusual. Other studies, in particular those carried out in Manitoba and Saskatchewan, have found the same phenomenon.[5,6]

9.0 Overview

Nova Scotia's utilization of physicians' services for general practitioners, surgical specialists and all physicians is above the ten province median, while utilization of medical specialists in Nova Scotia is below the ten province median.

Nova Scotia's services per capita are below the average of the ten provinces, and Nova Scotia has a ranking of 7 or 8. If diagnostic and laboratory services are excluded from total physicians' services, Nova Scotia's services per capita move above the average and to a ranking of second highest amongst the ten Canadian provinces.

New services, due to technology changes, population growth and population ageing accounted for a growth in utilization of physicians' services in Nova Scotia of 1.6% per year[7]. Total utilization increased by 4.2%, therefore, 2.6 percentage points

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[6] Which include partial or minor assessments, regional exams, first or subsequent visit with regional exams, subsequent or repeat exams, ordinary, pre- and post-natal care and well baby care when specifically performed in the office.

[7] Utilization increased 0.54% due to new services (technology), 0.65% due to population growth and 0.43% due to population ageing.

are due to other factor affecting the utilization of physicians' services.

In Nova Scotia the utilization of medical specialists' services increased faster than that for surgical specialists and G.P.s. The utilization of G.P.s' services grew the slowest of the three. Metro G.P.s' services grew over twice as fast as Non-Metro G.P.s' services.

The largest increase in physicians' services were for I.C.U. services, this was followed by consultations and psychiatric services.

The data show that the utilization of specialty services depends upon availability of specialty services, although this does not explain all of the observed differences. In areas where specialists are not available, there is some substitution of G.P. services for specialty services.

TABLE 1
TOTAL HEALTH CARE EXPENDITURE BY PROVINCE
1984 AND 1985

	Expenditure Per Person	Provincial[1] Gov't Expense	% of[2] Prov.GDP	Expenditure Per Person	Prov.Gov't Expense
Canada	$1,488.17	70.2%	8.5%	$1,567.90	70.1%
Nfld.	1,230.91	75.0	11.9	1,282.16	75.7
P.E.I.	1,206.39	76.8	12.4	1,279.37	73.5
N.S.	1,339.83	70.4	11.2	1,430.76	68.6
N.B.	1,308.68	71.8	11.6	1,354.19	71.2
P.Q.	1,411.21	76.9	9.5	1,499.65	76.1
Ont.	1,512.48	65.9	8.1	1,602.04	65.6
Man.	1,520.58	68.4	9.7	1,615.66	67.6
Sask.	1,459.74	69.5	8.4	1,523.27	70.2
Alta.	1,636.13	74.1	6.4	1,721.21	75.7
B.C.	1,589.99	66.8	9.1	1,621.12	67.8
Terr.	2,624.30	47.8	11.2	2,861.25	50.9

Source: National Health Expenditures in Canada, 1975-85, Health Information Division, Health & Welfare Canada, (Tables 91, 92 & 76).

1. Provincial Government share of total expenditure.

2. Total health care expenditure as a percent of provincial gross domestic product, which is defined as the total value of goods and services produced within the province. Data are not available for 1985.

TABLE 2
TOTAL HEALTH EXPENDITURE BY CATEGORY
DOLLARS PER PERSON
CANADA AND NOVA SCOTIA, 1985

	Canada	Nova Scotia
Total Expense	$1567.90	$1430.76
Personal Health Care	1378.27	1296.56
Institutional and Related Service	821.24	781.13
Hospitals	633.84	663.17
Other Institutions	176.60	108.90
Home Care	8.02	1.66
Ambulances	12.78	7.40
Professional Services	352.78	280.09
Physicians	246.23	203.29
Dentists	85.81	72.05
Other Professionals	20.75	4.75
Drugs & Appliances	194.25	235.34
Prescribed Drugs	85.83	128.60
Non-Prescribed Drugs	73.64	79.25
Eyeglasses	25.86	23.82
Hearing Aids	2.76	2.88
Other Appliances & Prostheses	6.16	1.95
Other Health Expense	189.63	134.20
Prepayment Administration[1]	20.89	23.44
Public Health	65.96	34.58
Capital Expenditure	69.25	49.82
Health Research	14.05	3.25
Miscellaneous Health Costs	19.48	22.38

Source: National Health Expenditures in Canada, 1975-85, Health Information Division, Health & Welfare Canada.

1. Prepayment Administration includes administrative costs of private insurers and public health insurance plans. Where administrative costs of public plans are not shown explicitly in provincial Public Accounts, they are included with Public Health expenditure. This is the case in New Brunswick.

TABLE 3
PERCENTAGE OF PHYSICIAN SERVICES TO TOTAL HEALTH CARE EXPENDITURE BY PROVINCE, 1985

Province	Expenditure on Physician Services	Total Health Care Expenditure	Physician Services To Total
Nfld	141.14	1,282.16	11.0
PEI	153.04	1,279.37	12.0
NS	203.29	1,430.76	14.2
NB	170.17	1,354.19	12.6
PQ	204.01	1,499.65	13.6
Ont	288.37	1,602.04	18.0
Man	193.35	1,615.66	12.0
Sask	181.54	1,523.27	11.9
Alb	250.45	1,721.21	14.6
BC	306.40	1,621.12	18.9
Terr	246.23	2,861.25	8.6
Canada	246.23	1,567.90	15.7

Source: National Health Expenditures in Canada, 1975-87, Health Information Division, Health and Welfare Canada

TABLE 4
PER CAPITA EXPENDITURE FOR PHYSICIANS SERVICES
CANADA AND NOVA SCOTIA
1972-73 TO 1985-86

Year	Nova Scotia	10 Province Median	Nova Scotia Percent of Median	N.S. Rank
1972-73	$ 42.77	$ 45.24	94.5%	6
1973-74	45.42	47.91	94.8	6
1974-75	51.59	52.90	97.5	6
1975-76	63.48	61.62	103.0	5
1976-77	69.47	67.63	102.7	5
1977-78	73.66	72.10	102.2	5
1978-79	80.44	77.96	103.2	5
1979-80	88.53	86.37	102.5	4
1980-81	99.22	96.27	103.1	5
1981-82	114.28	108.98	104.9	4
1982-83	140.55	128.53	103.4	4
1983-84	150.74	136.93	110.1	4
1984-85	167.55	143.60	116.7	4
1985-86	182.96	152.32	120.1	3

Notes: Excludes payments to physicians in specialties of radiology and pathology, as well as, payments to non-pathologists who bill on behalf of commercial laboratories. In the eastern provinces, most radiology and laboratory services are paid through hospitals, while in other provinces these services are billed on a fee-for-service basis.

Source: Per Capita Cost of Medical Care Program Fee-For-Service Payment to Physicians (February 1984)

National Grouping System: Data and Documentation 1980-81 to 1984-85 (June 1987)

National Grouping System: Interim Report 1985-86 (April 1988)

All three reports were published by Health Information Division, Information Systems Directorate, Health and Welfare Canada.

TABLE 5
PER CAPITA EXPENDITURE
STANDARDIZED TO NOVA SCOTIA FEES: 1985-86

	Nova Scotia	10 Provinces Median	Nova Scotia as a Percent of Median
G.P.'s	$ 94.65	$ 89.07	106.3%
Medical Specialists	37.73	38.88	96.1
Surgical Specialists	50.58	43.78	115.5
All Physicians	182.96	178.61	102.4

F.T.E.'s Per 100,000 Population, 1985-86

	Nova Scotia	10 Provinces Median	Nova Scotia as a Percent of Median
G.P.'s	78.45	74.71	105.0%
Medical Specialists	28.63	28.21	101.5
Surgical Specialists	25.29	20.68	122.3
All Physicians	132.37	124.08	106.7

Prepared by: Maritime Medical Care Inc.
Research & Statistics
November 1, 1988

Sources: National Grouping System Interim Report, April 1988
Payment Schedule Comparison System, July 1, 1985
Full Time Equivalence for Physicians (Preliminary), December 1987

All reports were published by Health Information Division, Health and Welfare Canada.

TABLE 6
PHYSICIAN SERVICES PER 1,000 POPULATION, BY TYPE OF SERVICE
NOVA SCOTIA AND TEN PROVINCE MEDIAN

Category	Nova Scotia			Ten Province Median		
	1980-81	1985-86	% Change	1980-81	1985-86	% Change
Consultations	274	390	42.8%	321	383	19.4%
Rank	5	3				
Office Visits	3,768	4,163	10.5	3,980	4,441	11.6
Rank	5	7				
Hospital Visits	1,106	1,119	1.1	976	1,004	2.8
Rank	3	4				
Home/Emerg. Visits	581	770	32.5	268	328	22.5
Rank	1	1				
Major Surgery	68	73	7.7	66	73	9.9
Rank	2	4				
Minor Surgery	78	87	11.3	96	103	6.9
Rank	7	6				
Surg. Assistance	23	25	6.1	19	20	9.3
Rank	4	4				
Obstetrical Serv.	18	19	9.5	23	22	-1.0
Rank	9	8				
Anaesthesia	99	117	17.6	100	107	7.6
Rank	5	3				
Diag. Radiology	-	-	500.0	344	373	8.4
Rank	8	9				
Laboratory	1	3	81.6	1,857	2,635	41.9
Rank	9	9				
Diag/Therapeutic	465	555	19.4	1,022	1,200	17.5
Rank	7	7				
Other Services	56	70	25.4	26	41	58.5
Rank	2	2				
All Services	6,482	7,321	12.9	9,071	10,689	17.8
Rank	7	8				
All Services Excl. Diag & Lab	6,015	6,763	12.4	5,849	6,481	10.8
Rank	2	2				

- Below 0.5.

Source: Health and Welfare Canada National Grouping System

TABLE 7
M.S.I. FEE-FOR-SERVICE EXPENDITURE FOR PHYSICIANS SERVICES[1]
BY DATE INCURRED
FISCAL 1970-71 TO 1987-88

			Constant Dollar Expenditure2			
	Insured Population	Expenditure ($000)	Amount	Percent Increase	Amount Per Insured	Percent Increase
1970-71	771,000	$ 29,119	$ 29,119	-	$37.77	-
1971-72	778,000	31,080	29,516	1.4%	37.94	0.5%
1972-73	785,000	34,587	31,615	7.1	40.27	6.1
1973-74	794,000	37,649	32,600	3.1	41.06	2.0
1974-75	802,000	42,936	34,097	4.6	42.51	3.5
1975-76	811,000	52,219	36,296	6.4	44.75	5.3
1976-77	817,000	57,595	36,999	1.9	45.29	1.2
1977-78	820,000	62,229	38,439	3.9	46.88	3.5
1978-79	824,000	68,590	39,867	3.7	48.38	3.2
1979-80	827,000	75,616	40,883	2.5	49.44	2.2
1980-81	831,000	85,900	41,917	2.5	50.44	2.0
1981-82	834,000	99,103	43,178	3.0	51.77	2.6
1982-83	839,000	118,230	45,386	5.1	54.09	4.5
1983-84	846,000	131,209	46,854	3.2	55.38	2.4
1984-85	855,000	147,356	48,812	4.2	57.09	3.1
1985-86	859,000	160,838	50,644	3.8	58.96	3.3
1986-87	862,000	172,065	53,117	4.9	61.62	4.5
1987-88	868,000	184,975	55,439	4.4	63.87	3.7

1. Based on date of service, not date of payment. Excludes salary reimbursement and payments for out-patient and diagnostic services reimbursed by the Department of Health.

2. Constant Dollar Expenditure was calculated by dividing actual expenditure by an index of tariff increases.

Source: Maritime Medical Care Inc.

TABLE 8
NOVA SCOTIA MEDICAL SERVICES INSURANCE
CONSTANT DOLLAR EXPENDITURE PER FULL TIME EQUIVALENT (FTE)
IN 1987-88 DOLLARS

	Expenditure (000's)	FTE'S	Expenditure Per FTE	Index 1977-78 = 100
1970 - 71	$ 97,157	655.1	$148,309	102.5
1971 - 72	98,482	703.1	140,068	96.8
1972 - 73	105,485	713.4	147,862	102.2
1973 - 74	108,772	730.4	148,921	102.9
1974 - 75	113,766	790.6	145,742	100.7
1975 - 76	121,103	849.0	142,642	98.6
1976 - 77	123,499	869.2	142,084	98.2
1977 - 78	128,254	886.2	144,725	100.0
1978 - 79	133,018	907.4	146,592	101.3
1979 - 80	136,408	936.5	145,675	100.7
1980 - 81	139,858	946.0	147,841	102.2
1981 - 82	144,066	969.1	148,660	102.7
1982 - 83	151,433	1031.4	146,823	101.4
1983 - 84	156,331	1051.1	148,731	102.8
1984 - 85	162,864	1094.5	148,802	102.8
1985 - 86	168,976	1147.2	147,294	101.8
1986 - 87	177,228	1191.5	148,744	102.8
1987 - 88	184,975	1231.7	150,179	103.8

NOTES: Includes fee-for-service expenditure.
Data were compiled on a date-of-service basis.
Constant dollar expenditure was calculated by multiplying actual expenditure each year by an index of fee increases.

Source: Maritime Medical Care Inc.

TABLE 9
PERCENTAGE DISTRIBUTION OF MSI PAYMENTS IN 1987-88 DOLLARS BY SPECIALTY GROUP

	1975-76	1981-82	1987-88
General Practitioners	57.4%	54.0%	51.3%
Medical Specialists	16.1	19.1	22.2
Surgical Specialists	26.5	26.9	26.5
	100.0%	100.0%	100.0%

Source: Maritime Medical Care Inc.

TABLE 10
ANNUAL RATES OF INCREASE IN UTILIZATION AND TARIFF
FISCAL 1975-76 TO 1987-88

	1975-76 to 1981-82	1981-82 to 1987-88
General Practitioners		
Utilization	1.4%	3.3%
Tariff	9.0	7.0
Total Expenditure	10.5	10.5
Medical Specialists		
Utilization	5.4	6.9
Tariff	8.3	6.7
Total Expenditure	14.2	14.0
Surgical Specialists		
Utilization	2.7	3.9
Tariff	6.7	5.5
Total Expenditure	9.5	9.6
All Physicians		
Utilization	2.4	4.2
Tariff	8.2	6.5
Total Expenditure	10.8	11.0
Insured Population	0.47%	0.66%

Source: Maritime Medical Care Inc.

TABLE 11
PERCENT CHANGE IN MSI EXPENDITURE, BY AREA

Area	1975-76 to 1981-82	1981-82 to 1987-88
Annapolis	-2.8%	46.3%
Antigonish	2.8	48.1
Cape Breton		
Rural	1.1	8.5
Sydney	11.9	18.8
Colchester	-1.9	31.6
Cumberland	6.3	22.8
Digby	12.2	-7.7
Guysborough	57.3	-2.9
Halifax		
Rural	132.1	41.0
Halifax/Dartmouth	16.6	38.9
Hants	22.3	0.8
Inverness	10.8	-5.6
Kings	56.0	19.5
Lunenburg	12.0	29.9
Pictou	8.6	13.9
Queens	-17.8	34.9
Richmond	-5.0	29.1.
Shelburne	-21.1	29.1
Victoria	11.8	30.9
Yarmouth	15.2	14.7
Total	15.5%	28.0%

Source: Maritime Medical Care Inc.

TABLE 12
MSI FEE-FOR-SERVICE EXPENDITURE PER INSURED PERSON
BY AGE AND SEX
1987-88

Age Group	Insured Population	Expenditure per Insured		
		Male	Female	Total
0 - 4	60,000	$235.57	$199.28	$217.86
5 - 9	59,700	127.54	109.48	118.66
10 - 14	64,700	90.71	89.16	89.96
15 - 19	68,300	96.86	156.78	125.81
20 - 24	79,200	91.64	217.11	153.30
25 - 29	76,100	103.45	280.92	192.56
30 - 34	70,300	121.54	263.66	193.74
35 - 39	71,200	123.38	216.82	170.11
40 - 44	54,300	157.72	241.07	199.17
45 - 49	42,800	180.33	258.93	219.58
50 - 54	39,700	213.90	250.04	232.00
55 - 59	37,400	270.34	267.75	269.00
60 - 64	37,200	322.27	283.62	301.92
65 - 69	35,000	387.85	325.05	353.68
70 - 74	29,800	424.69	374.28	396.78
75+	42,200	541.35	458.57	490.21
TOTAL	867,900	$180.74	$239.44	$210.52

1. The insured population in each age group was estimated as of October 1, 1987 by extrapolating from 1981 to 1986 census data. This estimate of 867,900 excludes 13,400 individuals employed in Armed Forces or R.C.M.P. Population estimates above are rounded to the nearest 100, while expenditure per insured was calculated from unrounded data.

Source: Maritime Medical Care Inc.

TABLE 13
MSI INSURED POPULATION AND PER CAPITA EXPENDITURE
PHYSICIANS FEE-FOR-SERVICE - FISCAL 1982-83 TO 1987-88

Age	Insured - Population (000's) - 1982-83	1987-88	Expenditure Per Insured 1982-83	1987-88	Percent Change
1 - 4	60.4	60.0	$139.59	$217.86	56.1%
5 - 9	63.7	59.7	78.57	118.66	51.0
10 - 14	71.0	64.7	60.53	89.96	48.6
15 - 19	80.7	68.3	84.85	125.81	48.3
20 - 24	76.5	79.2	124.73	153.30	22.9
25 - 29	69.2	76.1	143.95	192.56	33.8
30 - 34	65.4	70.3	135.85	193.74	42.6
35 - 39	56.8	71.2	133.25	170.11	27.7
40 - 44	44.2	54.3	141.20	199.17	41.1
45 - 49	39.7	42.8	147.59	219.58	48.8
50 - 54	39.1	39.7	163.56	232.00	41.8
55 - 59	38.3	37.4	182.80	269.00	47.2
60 - 64	38.0	37.2	210.48	301.92	43.4
65 - 69	33.5	35.0	233.48	353.68	51.5
70 - 74	25.9	29.8	276.96	396.78	43.3
75 +	36.2	42.2	324.26	490.21	51.2
Total	838.6	867.9	$144.01	$210.51	46.2%

Source: Maritime Medical Care Inc.

TABLE 14
1987-88 PER CAPITA EXPENDITURE
MULTIPLIED BY THE INSURED POPULATION FROM 1982-83 TO 1987-88

Age	Expenditure (000's) 1982-83	1983-84	1984-85	1985-86	1986-87	1987-88
1 - 4	$ 13,159	$ 13,246	$ 13,246	$ 13,159	$ 13,093	$ 13,072
5 - 9	7,559	7,416	7,369	7,310	7,203	7,084
10 - 14	6,387	6,324	6,225	6,081	5,928	5,820
15 - 19	10,153	9,738	9,360	9,096	8,907	8,593
20 - 24	11,728	12,049	12,249	12,203	12,065	12,141
25 - 29	13,325	13,672	13,941	14,192	14,384	14,654
30 - 34	12,671	12,768	13,039	13,310	13,504	13,620
35 - 39	9,662	10,224	10,717	11,125	11,534	12,112
40 - 44	8,803	9,202	9,560	9,978	10,397	10,815
45 - 49	8,717	8,805	8,959	9,091	9,288	9,398
50 - 54	9,071	9,118	9,141	9,141	9,187	9,210
55 - 59	10,303	10,249	10,195	10,195	10,141	10,061
60 - 64	11,473	11,564	11,533	11,352	11,231	11,231
65 - 69	11,848	11,813	11,848	12,096	12,273	12,379
70 - 74	10,277	10,634	10,991	11,269	11,507	11,824
75 +	17,746	18,285	18,873	19,510	20,099	20,687
Total	$172,882	$175,107	$177,246	$179,108	$180,741	$182,701

Source: Maritime Medical Care Inc.

TABLE 15
ANALYSIS OF THE EFFECTS OF POPULATION GROWTH AND POPULATION AGEING ON MSI EXPENDITURE FISCAL 1982-83 TO 1987-88

	Population Growth	Population Ageing	Combined Effects
1983-84	0.89%	0.39%	1.29%
1984-85	0.83	0.39	1.22
1985-86	0.59	0.46	1.05
1986-87	0.47	0.44	0.91
1987-88	0.67	0.41	1.08
Five Years	3.49	2.11	5.68
Annual Average Increase	0.69%	0.42%	1.11%

NOTE: Population growth rates were calculated from total populations in Table 13. Combined effects were calculated from Table 14. Population ageing rates are the compounded difference between the two.

Source: Maritime Medical Care Inc.

TABLE 16
PHYSICIAN SERVICES (FEE-FOR-SERVICE)
NUMBER OF SERVICES PER 1,000 POPULATION
1980-81 TO 1986-87

	1980-81	1987-88	Percent Change
Consultations	271	438	61.6%
Office Visits	3,206	4,001	24.8
Home Visits	253	181	-28.5
Hospital Visits	1,070	1,015	-5.1
Emerg. & OPD	482	655	35.9
I.C.U.	34	56	64.7
Psych. Services	122	191	56.6
Sub-Total	5,438	6,537	20.2
Eye Examinations	107	81	-24.3
Other Diag. & Ther.	420	553	31.7
Sub-Total	527	634	20.3
Obstetrical Care	115	153	33.0
Major Surgery	68	84	23.5
Minor Surgery	145	182	25.5
Surgical Assist.	23	25	8.7
Anaesthesia	102	116	13.7
Sub-Total	338	407	20.8
All Other Services[1]	105	152	44.8
TOTAL	6,523	7,883	20.8

1. Includes out-of-province services, independent consideration, detention fees, and group immunization.

Source: Maritime Medical Care Inc.

TABLE 17
DISTRIBUTION OF INSURED PERSONS BY NUMBER OF SERVICES RECEIVED
1982-83 TO 1986-87

No. of Serv.	1982-83	1983-84	1984-85	1985-86	1986-87	Percent Change
Nil	99,400 (11.9%)	102,338 (12.1)	96,002 (11.3)	90,055 (10.5)	83,525 (9.7)	-16.0%
1-2	219,317 (26.2)	220,404 (26.0)	218,023 (25.6)	214,797 (25.0)	210,511 (24.4)	-4.1
3-4	148,409 (17.7)	150,515 (17.8)	151,064 (17.7)	151,944 (17.7)	151,532 (17.6)	2.1
5-10	212,449 (25.3)	214,370 (25.3)	221,008 (25.9)	227,281 (26.5)	231,808 (26.9)	9.1
11 +	159,025 (19.0)	158,473 (18.7)	167,003 (19.6)	174,023 (20.3)	184,724 (21.4)	16.2
Total	838,600	846,100	853,100	858,100	862,100	2.8

Note: The numbers in brackets show the percentage of the total insured population.

The table includes all persons who received any insured services during the year that was reimbursed on a fee-for-service basis. Persons who change MSI registration numbers during the year are counted twice if they received services under each number.

The number receiving Nil services is a residual calculated by subtracting the number of beneficiaries from estimates of the insured population.

Source: Nova Scotia Medical Services Insurance Annual Statistical Tables, 1982-83 to 1986-87.

TABLE 18
MSI PAYMENTS FOR PHYSICIANS SERVICES
EXPENDITURE PER INSURED PERSON BY COUNTY OF RESIDENCE
FISCAL 1987-88

County	Persons[1] Insured	Expenditure Per Insured Person: General Practitioners	Specialists	Total
Annapolis	22,600	$ 98.68	$ 82.00	$180.68
Antigonish	19,000	100.23	75.28	175.51
Cape Breton	122,600	113.21	98.93	212.14
Colchester	45,300	106.67	82.62	189.29
Cumberland	34,700	119.75	86.84	206.58
Digby	21,900	111.56	68.20	179.76
Guysborough	12,700	108.03	84.99	193.02
Halifax	302,700	100.69	125.05	225.74
Hants[2]	37,500	119.41	103.69	223.10
Inverness	21,900	107.69	84.74	192.43
Kings	52,400	108.89	110.17	219.06
Lunenburg	46,500	109.32	92.29	201.61
Pictou	49,900	111.35	91.02	202.37
Queens	13,100	102.87	97.67	200.53
Richmond	11,700	136.35	75.13	211.49
Shelburne	17,300	111.49	81.43	192.92
Victoria	8,800	99.29	68.23	167.51
Yarmouth	27,300	108.41	88.20	196.61
TOTAL	867,900	$107.36	$103.15	$210.51
VARIABILITY		8.3%	16.4%	8.3%

1. The distribution of insured population by county was based on 1986 census data. This distribution was then applied to an estimate of insured population on October 1, 1987. This estimate of 867,900 excludes 13,400 individuals employed in Armed Forces or R.C.M.P.

2. Expenditure by county is based on MSI county codes. In some instances persons who reside in one county have postal addresses in another county and in those instances MSI county codes would reflect the postal address. This problem is believed to have caused some distortion in expenditure per insured person in Hants County, where a few thousand residents of Halifax County have postal addresses.

Source: Maritime Medical Care Inc.

TABLE 19
MSI EXPENDITURE PER INSURED PERSON
SPECIALISTS SERVICES - BY REGION OF RESIDENCE
FISCAL 1987-88

		---- Per Capita Expenditure ----				
	FTE's Per[1] 100,000	Own Region	Halifax - Dartmouth	Percent In Other Areas	Total	Metro Region
1. Lunenburg-Queens	22.4	$ 32.32	$54.29	$ 6.85	$93.45	58.1%
2. Shelburne-Yarmouth	31.1	44.37	34.27	6.92	85.56	40.1
3. Valley	36.1	51.98	34.95	7.17	94.10	37.1
4. Colchester	25.8	35.37	42.72	4.51	82.60	51.7
5. Cumberland	21.0	34.33	38.74	13.75	86.82	44.6
6. Pictou	28.7	46.59	39.75	4.66	91.00	43.7
7. Antigonish-Guysborough	35.4	37.73	35.56	5.87	79.16	44.9
8. Cape Breton	34.6	63.81	24.32	5.92	94.05	25.9
Regions 1 - 8	31.0	$48.79	$35.13	$6.60	$90.52	38.8%
9. Halifax-Hants	101.0	117.61		5.05	122.67	
NOVA SCOTIA	58.5				103.15	

(1) Specialist full-time equivalents per 100,000 insured.

Source: Maritime Medical Care Inc.

TABLE 20
NOVA SCOTIA MEDICAL UTILIZATION DATA
1982-83 AND 1987-88

Category	Services - Metro G.P.			Services - Non-Metro G.P.		
	1982-83	1987-88	% Change	1982-83	1987-88	% Change
1. Consultations						
Major/Init.	4,177	6,688	60.1	9,806	13,236	35.0
Other	334	76	-77.2	160	70	-56.3
Sub-Total	4,511	6,764	49.9	9,966	13,306	33.5
2. Major Assessments						
Office	0	0	N/A	0	2	N/A
Hospital						
Inp/Newborn	4,755	4,905	3.2	9,755	8,252	-15.4
Inp/Other	2,993	3,198	6.8	5,698	5,237	-8.1
Unspec.	1,448	2,198	51.8	12,561	12,976	3.3
Unspec.	14,235	19,113	34.3	20,255	25,232	24.6
Special Eye Examin.	1,674	3,054	82.4	18,340	13,914	-24.1
Sub-Total	25,105	32,468	29.3	66,609	65,613	-1.5
3. Other Assessment						
Office	897,768	1,125,962	25.4	1,641,625	1,918,112	16.8
Hosp-Inp.	0	0	N/A	0	11	N/A
-Unspec.	5,315	37,621	607.8	70,954	47,405	-33.2
Unspec. Loc.	28,708	32,817	14.3	61,965	59,022	-4.7
Special Call	15,272	32,296	111.5	171,669	275,040	60.2
Detention	516	1,556	201.6	3,773	7,444	97.3
Sub-Total	947,579	1,230,252	29.8	1,949,986	2,307,034	18.3
4. Hospital Care Days						
Regular 28/30/31 or 35/42 days	35,424	35,110	-0.9	390,267	379,975	-2.6
Over above days	3,503	3,810	8.8	69,054	61,012	-11.6
Other	18,335	19,265	5.1	12,889	26,376	104.6
Sub-Total	57,262	58,185	1.6	472,210	467,363	-1.0
5. Special Calls						
Out-of-hours	30,804	30,295	-1.7	131,042	116,109	-11.4
Other	21,315	20,637	-3.2	92,608	89,610	-3.2
Sub-Total	52,119	50,932	-2.3	223,650	205,719	-8.0
6. Psychotherapy/Counselling						
Individual	44,794	59,275	32.3	34,749	43,616	25.5
Group/Family	134	367	173.9	50	98	96.0
Counselling	1,461	4,476	206.4	1,243	1,505	21.1
Sub-Total	46,389	64,118	38.2	36,042	45,219	25.5

TABLE 20 (CONT'D)
NOVA SCOTIA MEDICAL UTILIZATION DATA
1982-83 AND 1987-88

Category	Services - Metro G.P.			Services - Non-Metro G.P.		
	1982-83	1987-88	% Change	1982-83	1987-88	% Change
7. Major Surgery						
Integumentary						
Mastectomy	0	0	N/A	33	15	-54.5
Other	11	66	500.0	242	199	-17.8
Musculo-Skeletal						
Fractures	184	217	17.9	1,396	1,119	-19.8
Other	116	163	40.5	792	817	3.2
Respiratory						
Sub-Mucous	33	17	-48.5	1	18	1,700.0
Other	19	18	-5.3	25	31	24.0
Cardiovascular						
Heart/Peric	91	4	-95.6	-1	2	-300.0
Varicose Vein	4	1	-75.0	13	17	30.8
Other	94	1	-98.9	-1	6	-700.0
Digestive System						
Appendectomy	2	0	-100.0	87	65	-25.3
Laparotomy	1	0	-100.0	19	33	73.7
Cholecystect.	1	1	0.0	87	128	47.1
Tonsillectomy						
Child	77	13	-83.1	188	111	-41.0
Adult	59	4	-93.2	71	53	-25.4
Ing/Fem Hernia	1	3	200.0	95	95	0.0
Haemorrhoid.	0	0	N/A	27	35	29.6
Other	10	15	50.0	102	166	62.7
Urinary/Male Genital						
Prostatectomy	0	0	N/A	18	30	66.7
Vasectomy	29	64	120.7	113	167	47.8
Other	2	2	0.0	112	66	-41.1
Female Genital						
Prolapse	0	0	N/A	55	21	-61.8
Hysterectomy	2	1	-50.0	145	141	-2.8
Sterilization	0	0	N/A	202	249	23.3
Other	2	1	-50.0	75	99	32.0
Eye/Ear						
Cataract	0	0	N/A	70	80	14.3
Other	10	2	-80.0	114	51	-55.3
Other Major	2	0	-100.0	13	21	61.5
Sub-Total	750	593	-20.9	4,093	3,835	-6.3

TABLE 20 (CONT'D)
NOVA SCOTIA MEDICAL UTILIZATION DATA
1982-83 AND 1987-88

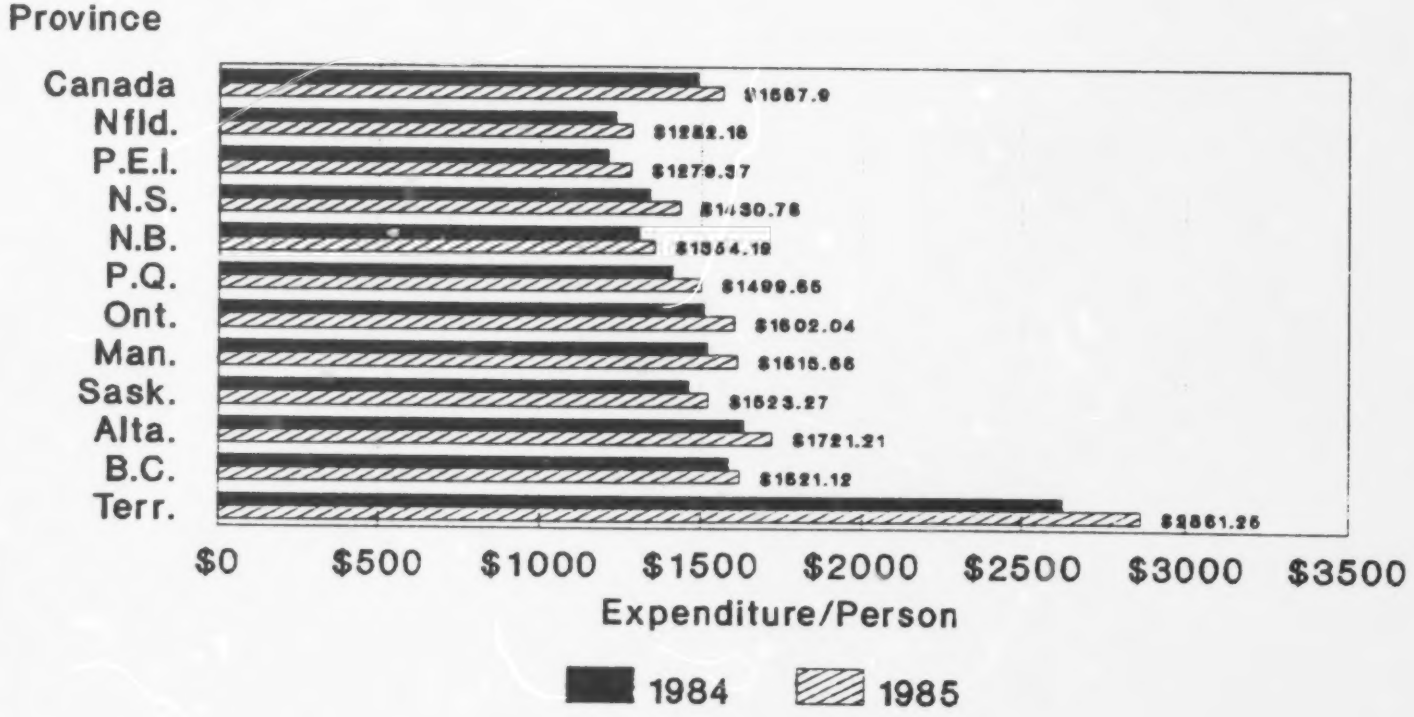
Category	Services - Metro G.P. 1982-83	1987-88	% Change	Services - Non-Metro G.P. 1982-83	1987-88	% Change
8. Minor Surgery						
Incision	949	1,946	105.1	2,298	3,062	33.2
Removal Foreign	700	1,956	179.4	2,636	4,176	58.4
Excision	3,739	6,090	62.9	8,200	10,024	22.2
Suture Wounds	5,683	7,316	28.7	17,828	17,728	-0.6
Excision Nail	908	1,029	13.3	2,650	2,591	-2.2
Chalazion	42	22	-47.6	233	76	-67.4
Circumcision	158	47	-70.3	512	226	-55.9
Myringotomy	270	47	-82.6	67	114	70.1
Fractures	1,287	1,753	36.2	3,769	3,128	-17.0
Other Minor	248	320	29.0	917	992	8.2
Sub-Total	13,984	20,526	46.8	39,110	42,117	7.7
9. Surgical Assistance						
Appendectomy	88	91	3.4	865	608	-29.7
Cholecystect.	380	387	1.8	1,292	1,359	5.2
Ing/Fem Hernia	225	224	-0.4	1,022	974	-4.7
Prostatect.	2	18	800.0	163	97	-40.5
Hysterectomy	596	644	8.1	1,130	1,260	11.5
C. Section	49	45	-8.2	463	408	-11.9
Other	3,472	3,650	5.1	8,294	8,538	2.9
Sub-Total	4,812	5,059	5.1	13,229	13,244	0.1
10. Obstetrical Services						
At Time Confine.	12	20	66.7	99	346	249.5
Confinement	3,075	3,220	4.7	5,896	5,172	-12.3
C. Section	1	0	-100.0	133	176	32.3
Ther. Abortion	0	0	N/A	102	37	-63.7
Other	5	6	20.0	39	64	64.1
Sub-Total	3,093	3,246	4.9	6,269	5,795	-7.6
11. Anaesthesia						
Appendectomy	71	99	39.4	735	444	-39.6
Cholecsyt.	121	128	5.8	1,052	853	-18.9
Haemorrhoid.	31	15	-51.6	233	169	-27.5
Prostat.	85	139	63.5	527	335	-36.4
Hysterect.	252	153	-39.3	923	662	-28.3
Tonsillectomy						
Child	220	147	-33.2	686	220	-67.9
Adult	84	52	-38.1	261	119	-54.4
Confine/C. Sect.	27	74	174.1	899	640	-28.8
Cystoscopy	452	338	-25.2	1,460	864	-40.8
Dilat/Curett	237	235	-0.8	1,837	1,245	-32.2
Nerve Blocks	561	573	2.1	1,012	1,077	6.4
Other	6,240	5,988	-4.0	20,498	16,415	-19.9
Sub-Total	8,381	7,941	-5.2	30,123	23,045	-23.5

TABLE 20 (CONT'D)
NOVA SCOTIA MEDICAL UTILIZATION DATA
1982-83 AND 1987-88

Category	Services - Metro G.P.			Services - Non-Metro G.P.		
	1982-83	1987-88	% Change	1982-83	1987-88	% Change
12. Diagnostic/Therapeutic Radiology and Radioisotopes						
Head/Neck	0	0	N/A	0	0	N/A
Ther/Radio (both)	0	0	N/A	1	0	-100.0
Other	0	1	N/A	0	3	N/A
Sub-Total	0	1	N/A	1	3	200.0
13. Laboratory Services						
Other Lab	319	860	169.6	319	504	58.0
14. Other Diagnostic/Therapeutic Services						
IC/Resusitat.	164	263	60.4	5,014	3,257	-35.0
Allergy Test	18,326	12,441	-32.1	26,460	21,294	-19.5
Inject/Aspir	2,748	2,641	-3.9	9,832	10,205	3.8
ECG	9	5	-44.4	1	2	100.0
Cystoscop/Diag	0	0	N/A	314	264	-15.9
Sigmoidoscopy	1,663	1,753	5.4	3,618	3,675	1.6
Other Endoscop	14	42	200.0	953	1,524	59.9
Diag Rad Proc	251	261	4.0	65	72	10.8
Dilat/Curett	23	5	-78.3	672	550	-18.2
EEG	0	1	N/A	0	0	N/A
Biopsies	704	1,169	66.1	1,627	2,207	35.6
Other	20,070	34,511	72.0	49,219	63,716	29.5
Sub-Total	43,972	53,092	20.7	97,775	106,766	9.2
15. Special Services						
Injections	7,479	6,983	-6.6	20,248	21,887	8.1
Pap Smear	31,020	37,524	21.0	42,095	46,927	11.5
Insert. IUD	1,587	863	-45.6	2,293	1,289	-43.8
Sub-Total	40,086	45,370	13.2	64,636	70,103	8.5
16. Miscellaneous Services						
Identified	56	28	-50.0	80	110	37.5
Unidentified	60	26	-56.7	182	69	-62.1
Sub-Total	116	54	-53.4	262	179	-31.7
Total	1,248,478	1,579,461	26.5	3,014,280	3,369,843	11.8

Source: National Grouping System, Health and Welfare Canada.

FIGURE 1: TOTAL HEALTH CARE EXPENDITURE PER PERSON, BY PROVINCE 1984 AND 1985



Source: National Health Expenditures in Canada, 1975-85, Health & Welfare Canada

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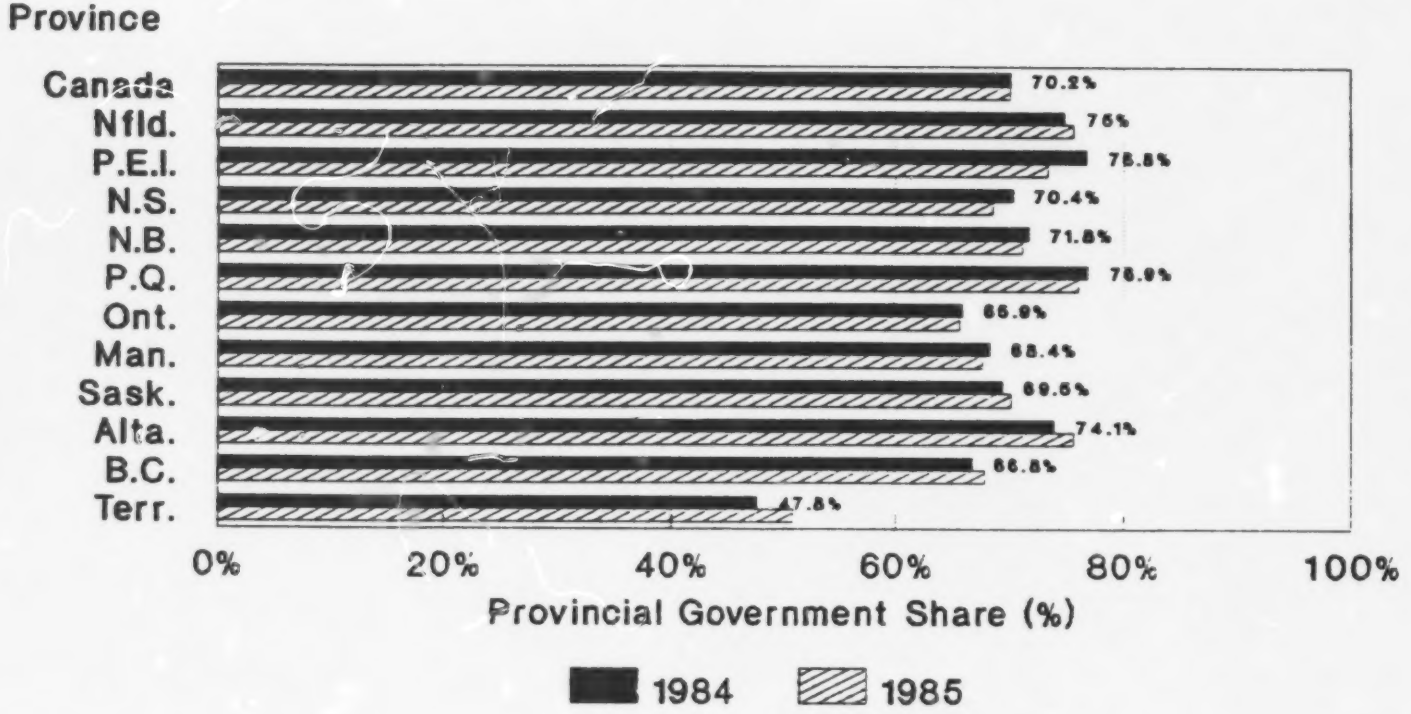
FIGURE 2: PROVINCIAL GOVERNMENT SHARE OF TOTAL HEALTH CARE EXPENDITURE BY PROVINCE, 1984 AND 1985



Source: National Health Expenditures in Canada, 1975-85, Health & Welfare Canada

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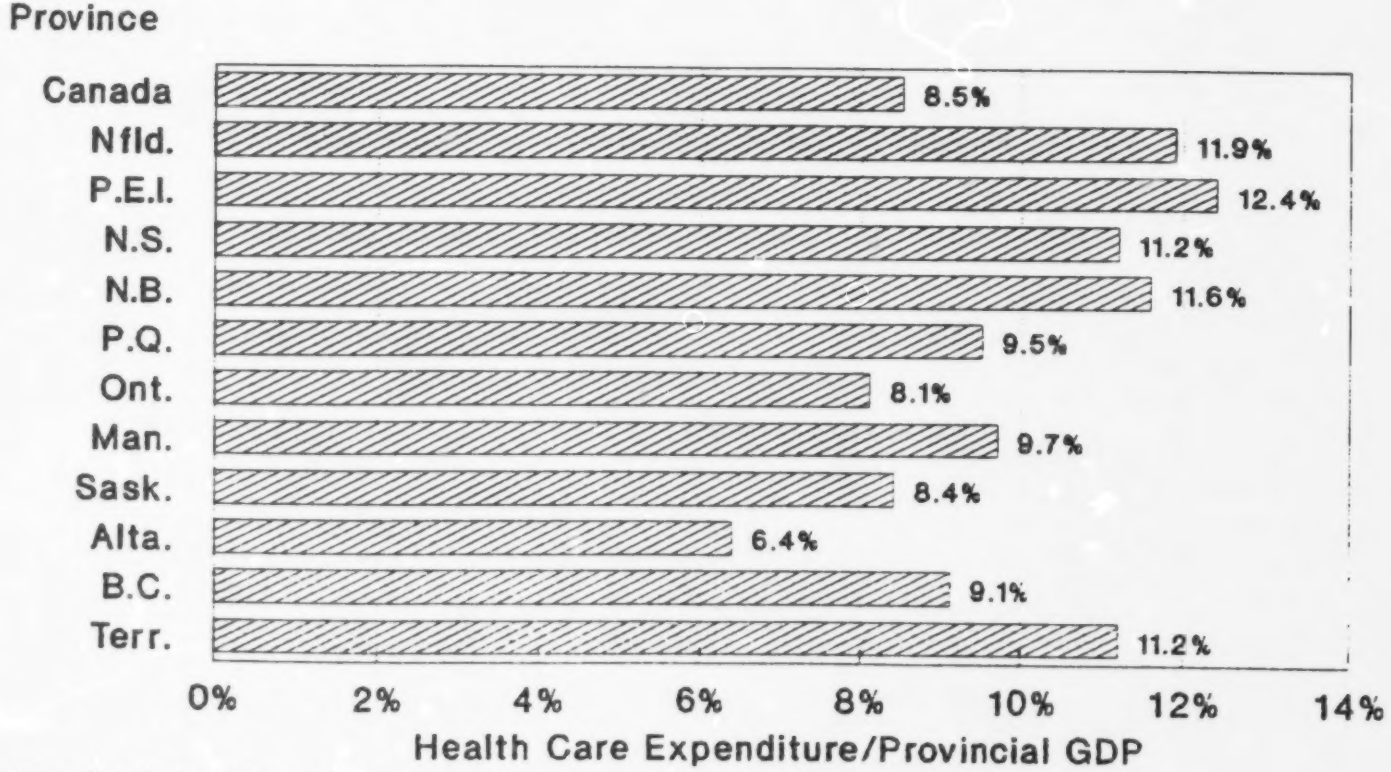
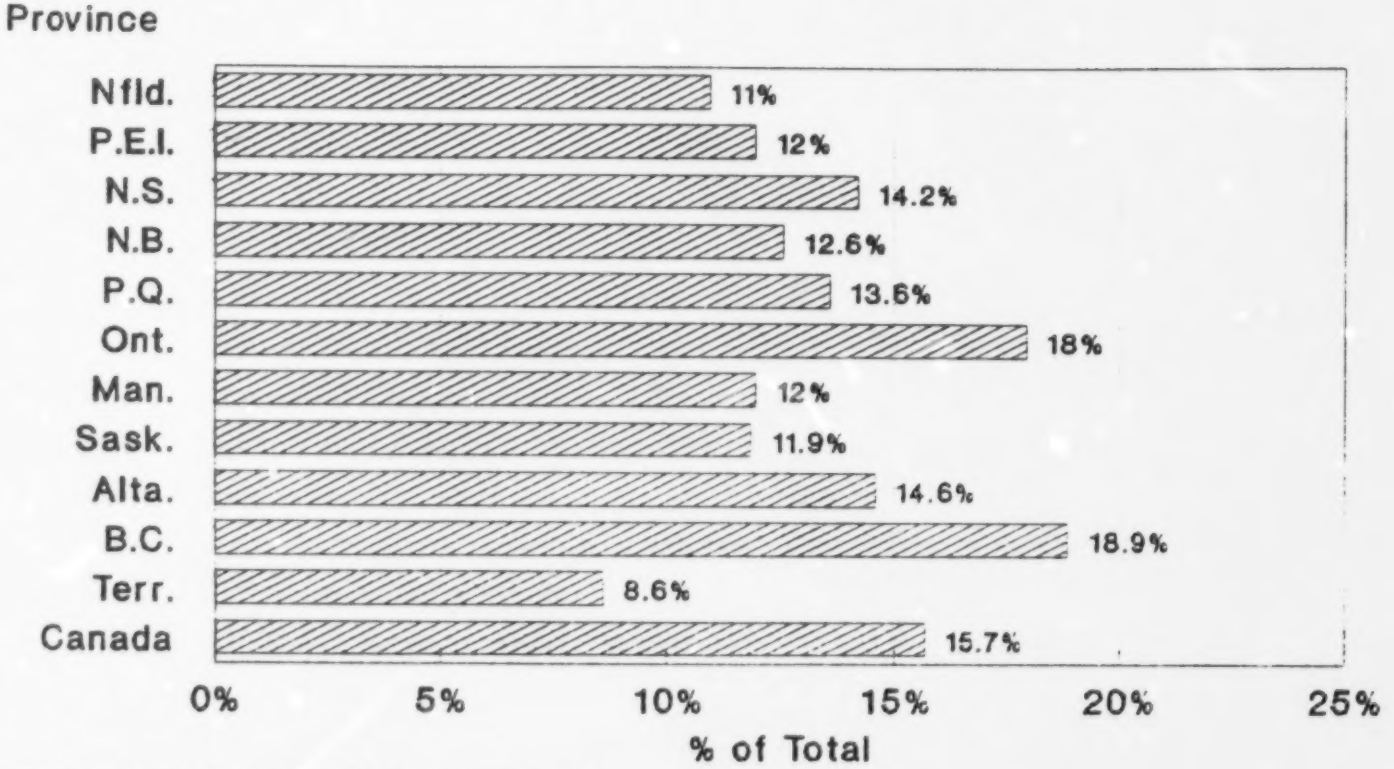
FIGURE 3: HEALTH CARE EXPENDITURE AS A PERCENTAGE OF PROVINCIAL GDP BY PROVINCE, 1984



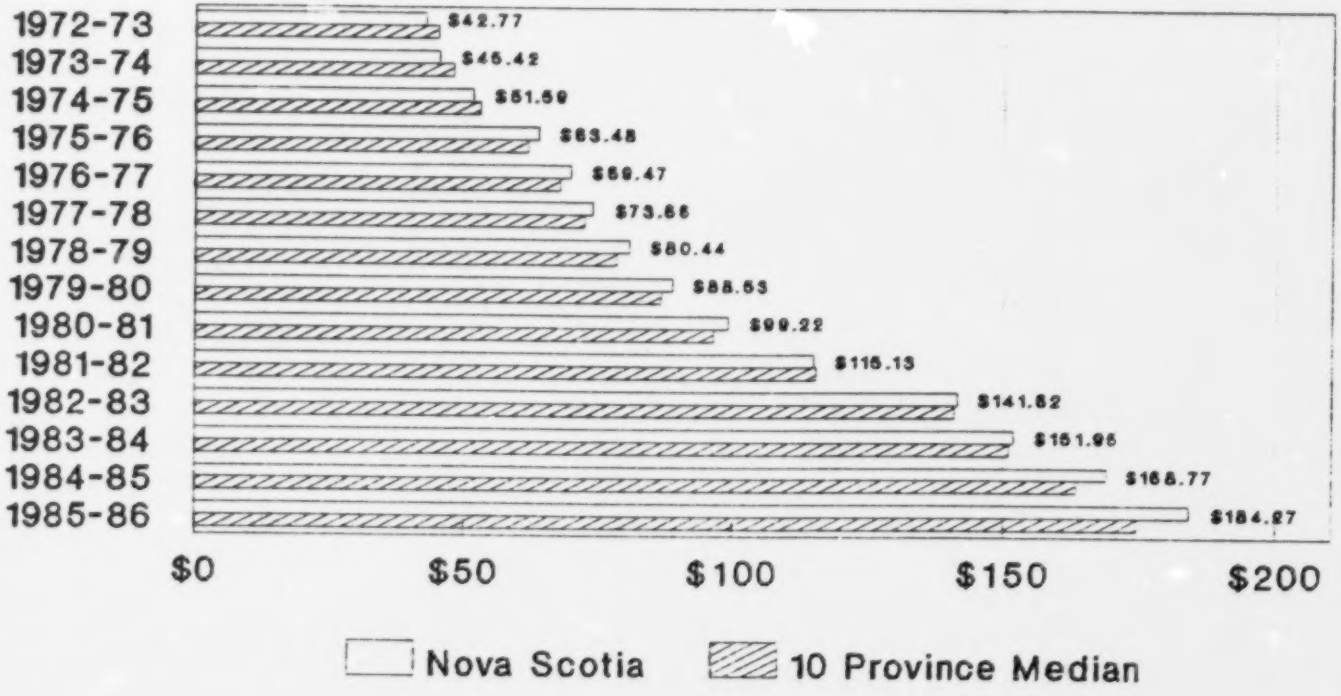
Source National Health Expenditures in Canada, 1975-85, Health & Welfare Canada

FIGURE 4: PHYSICIAN SERVICES AS A PERCENTAGE OF TOTAL HEALTH CARE EXPENDITURE, BY PROVINCE, 1985



Source: National Health Expenditures in Canada, 1975-85, Health & Welfare Canada

FIGURE 5: EXPENDITURE PER CAPITA ON PHYSICIAN SERVICES, CANADA & NOVA SCOTIA 1972-73 TO 1987-88



With Standardized Rates
Source: Health and Welfare Canada

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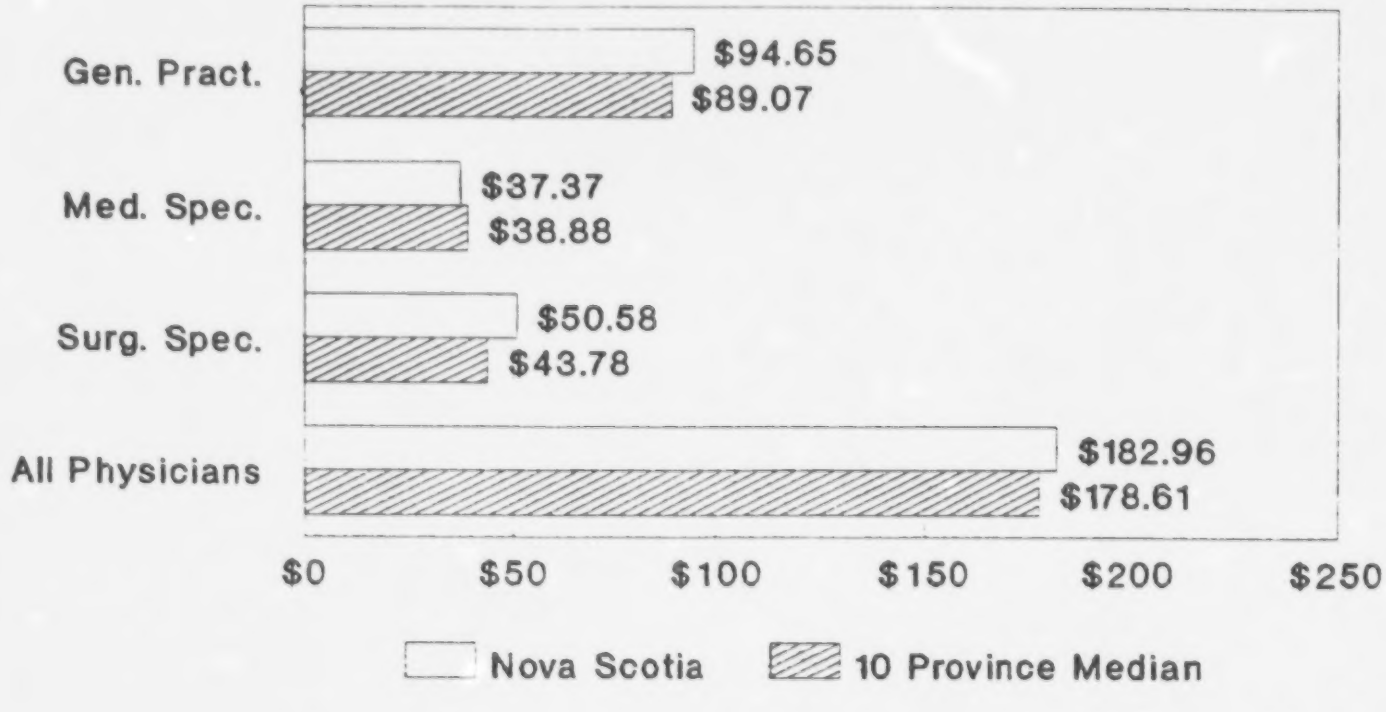
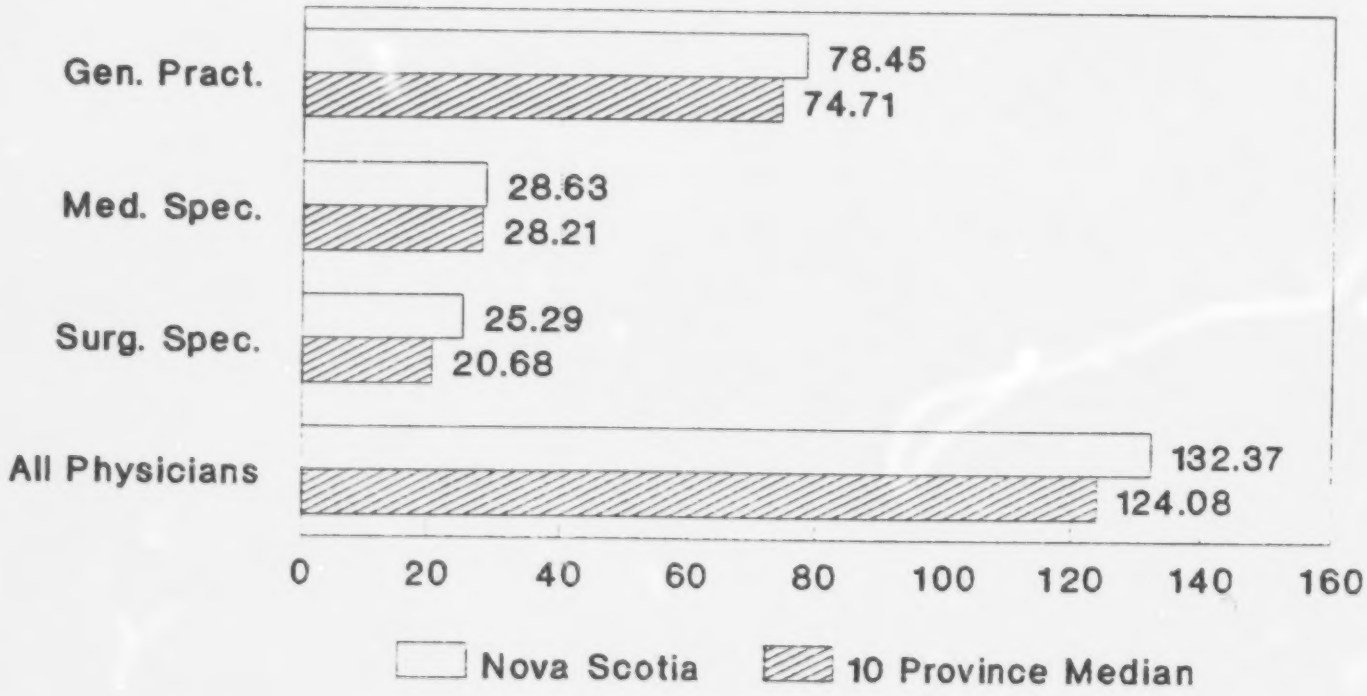
FIGURE 6: EXPENDITURE PER CAPITA ON PHYSICIAN SERVICES, BY TYPE OF PHYSICIAN CANADA & NOVA SCOTIA, 1985-86



Standardized to Nova Scotia Fees
Source: Health and Welfare Canada

FIGURE 7: F.T.E.s PER 100,000 POPULATION, BY TYPE OF PHYSICIAN CANADA & NOVA SCOTIA, 1985-86



Source: Health and Welfare Canada

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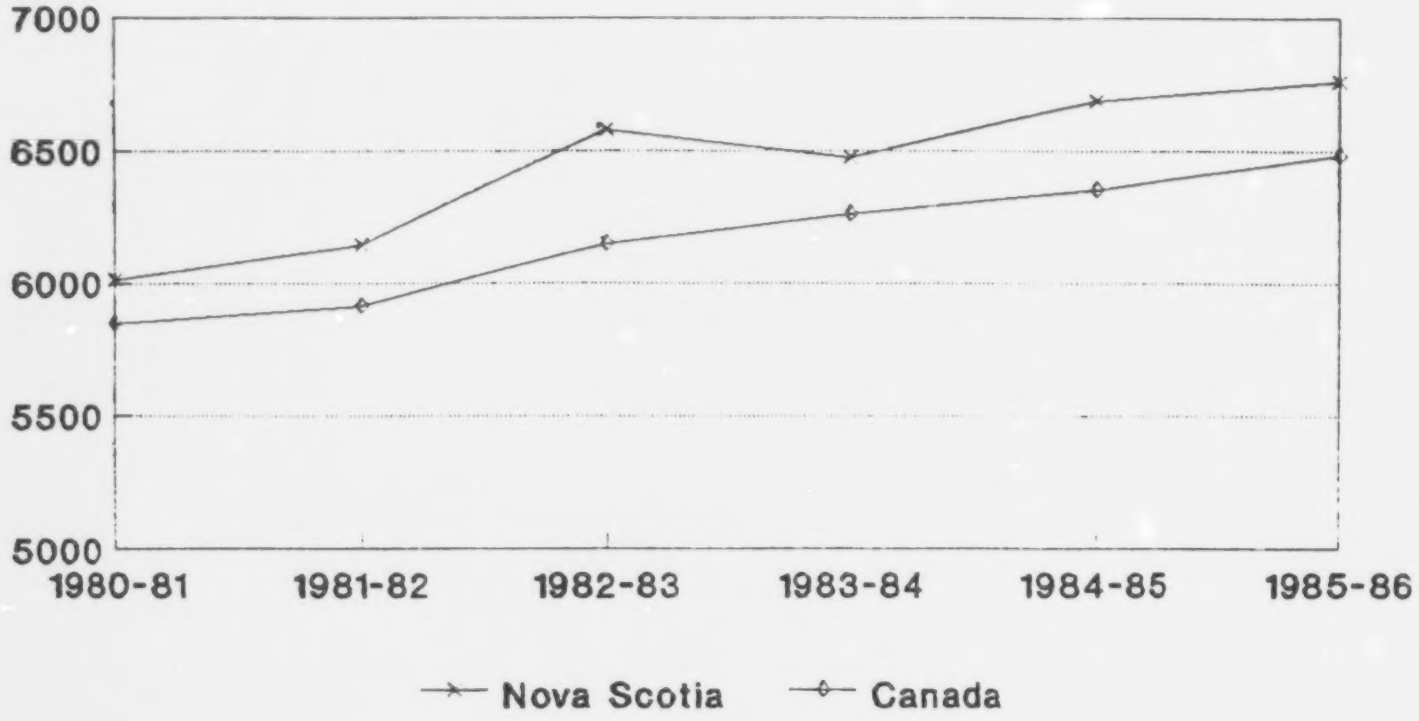
FIGURE 8: ALL PHYSICIAN SERVICES, EXCL. DIAG. & LAB SERVICES, PER 1,000 POP'N NOVA SCOTIA & CANADA, 1980-81 TO 1985-86



Source: Health and Welfare

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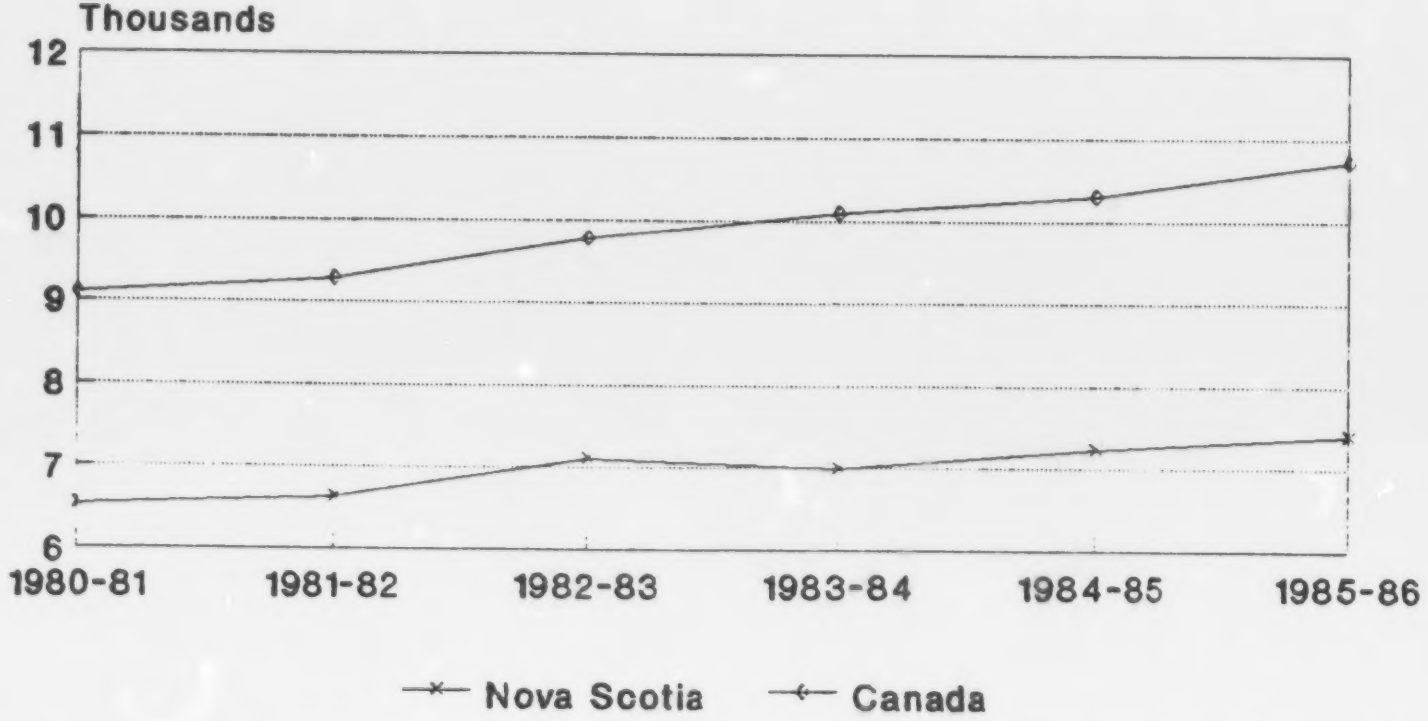
FIGURE 9: ALL PHYSICIAN SERVICES PER 1,000 POPULATION NOVA SCOTIA & CANADA, 1980-81 TO 1985-86



Source: Health and Welfare

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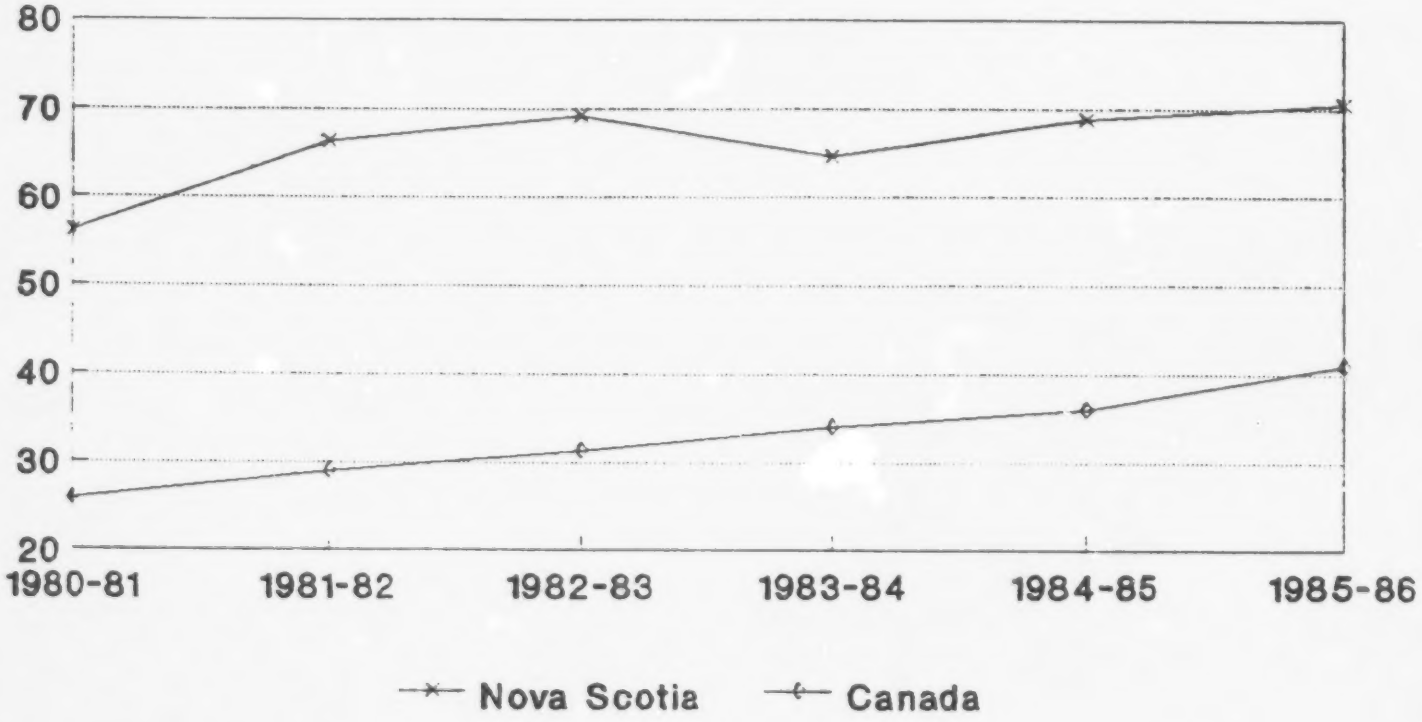
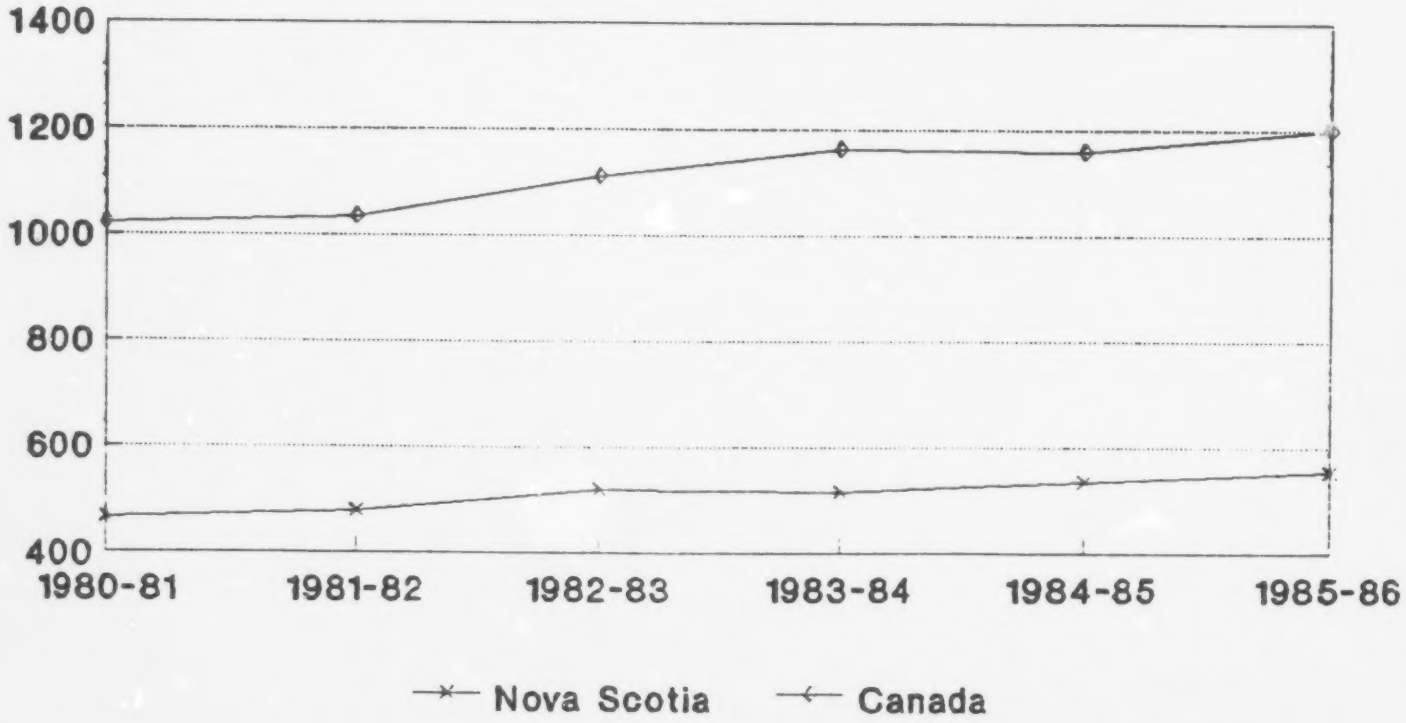
FIGURE 10: OTHER PHYSICIAN SERVICES PER 1,000 POPULATION NOVA SCOTIA & CANADA, 1980-81 TO 1985-86



Source: Health and Welfare

FIGURE 11: PHYSICIAN DIAGNOSTIC/ THERAPEUTIC SERVICES PER 1,000 POP'N NOVA SCOTIA & CANADA, 1980-81 TO 1985-86



Source: Health and Welfare

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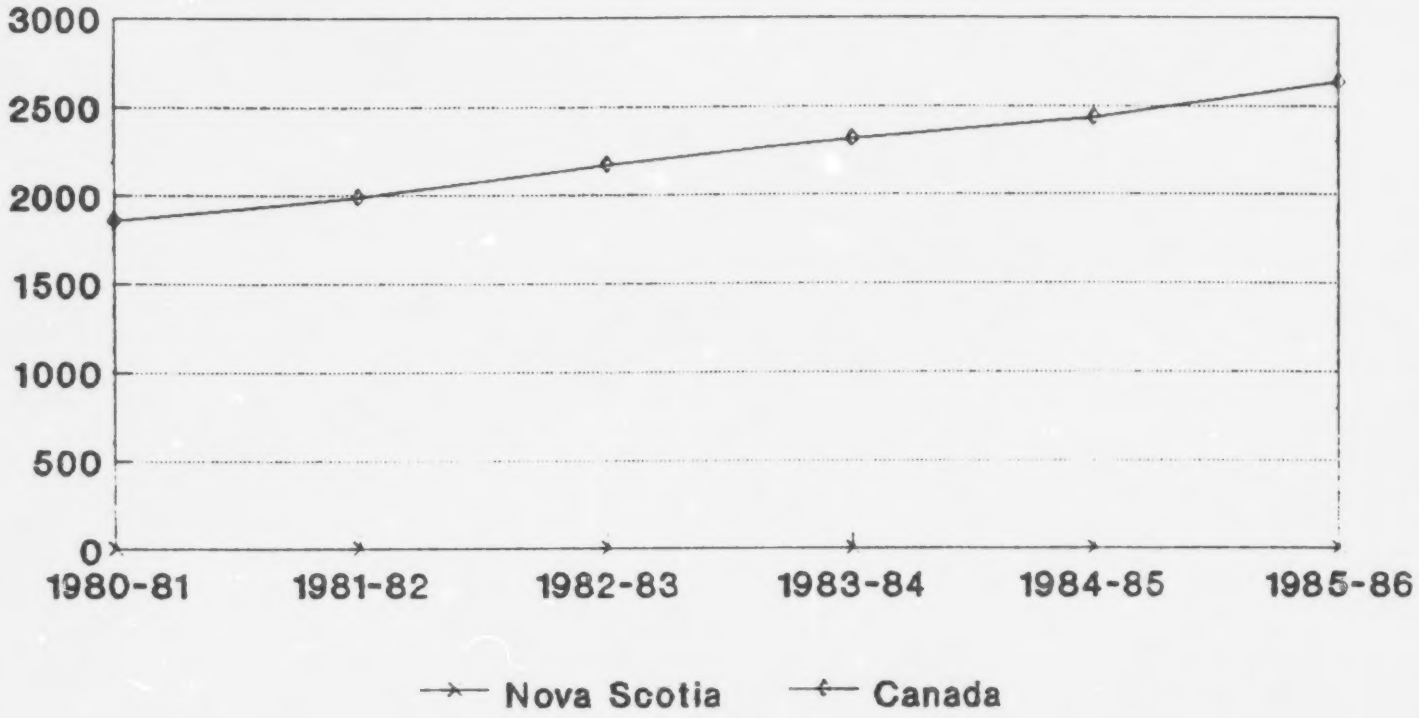
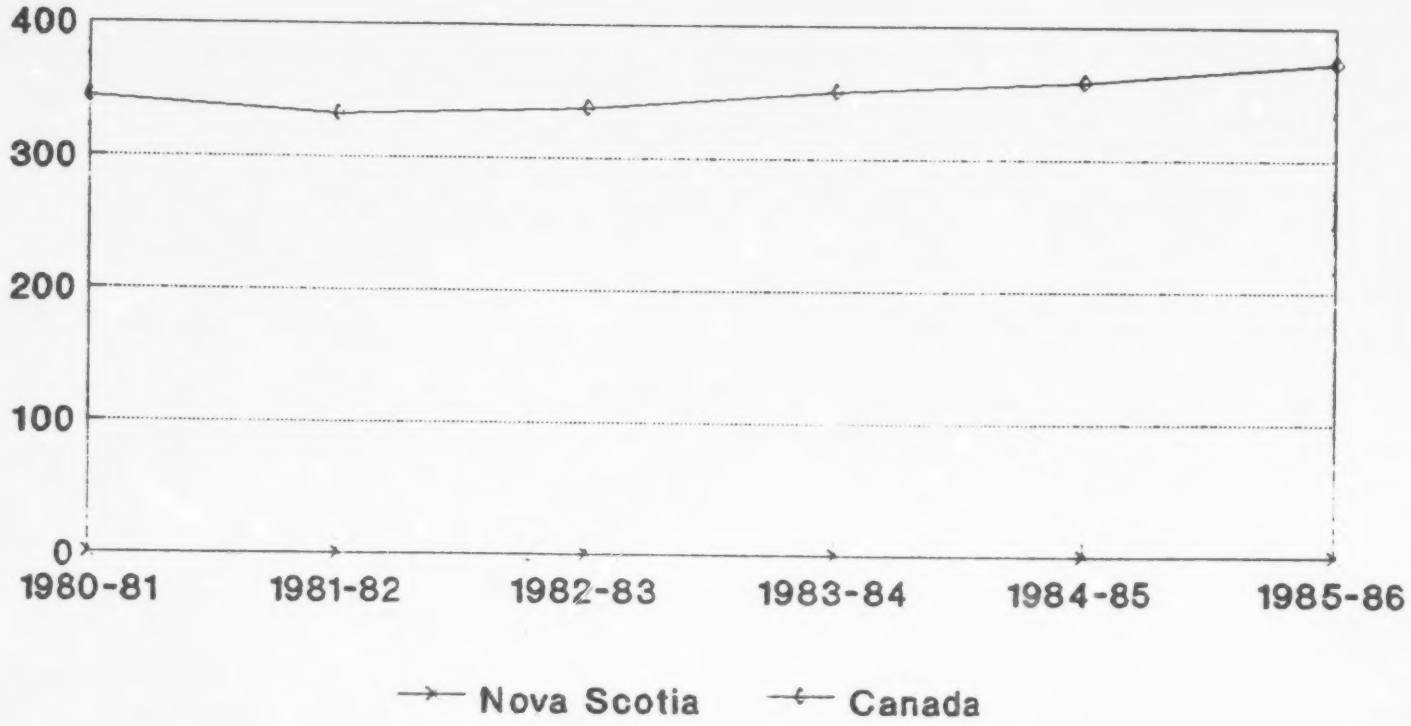
FIGURE 12: PHYSICIAN LABORATORY SERVICE PER 1,000 POPULATION NOVA SCOTIA & CANADA, 1980-81 TO 1985-86



Source: Health and Welfare

C11

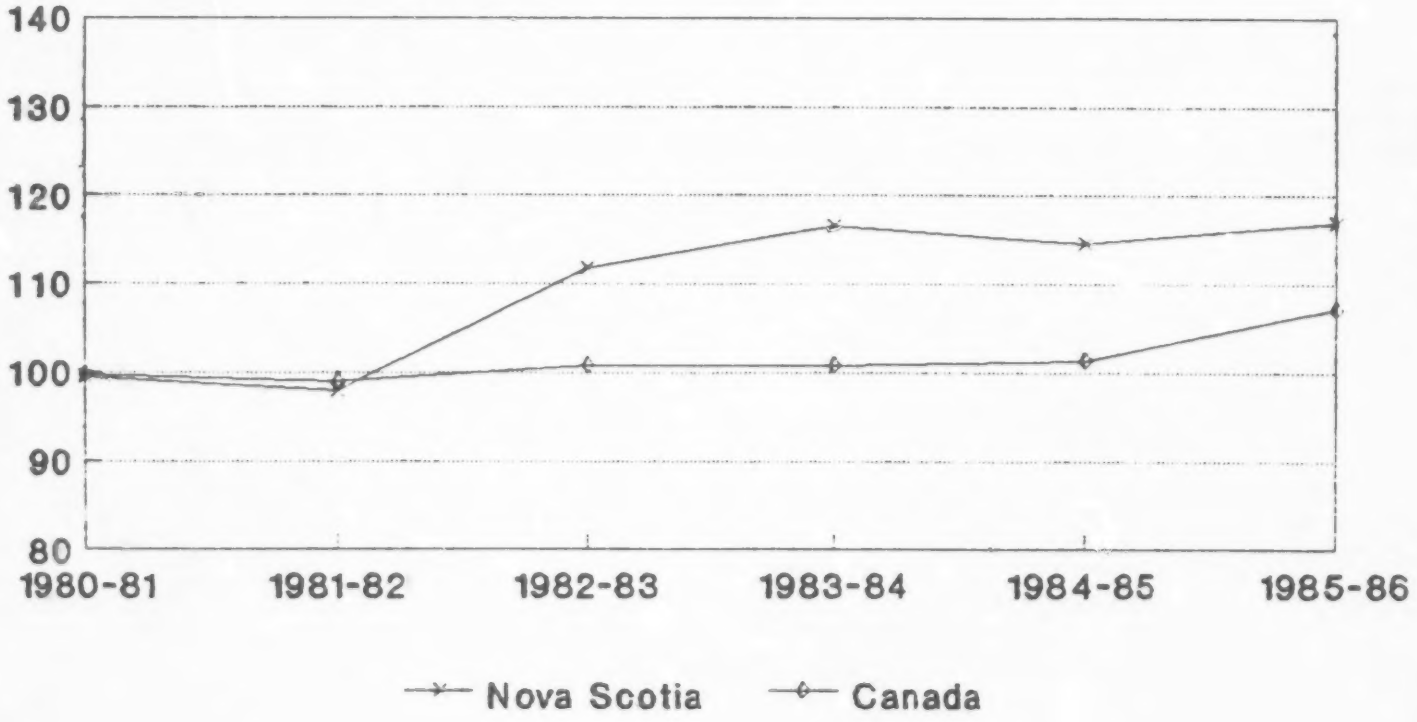
FIGURE 13: PHYSICIAN DIAGNOSTIC RADIO. SERVICES PER 1,000 POPULATION NOVA SCOTIA & CANADA, 1980-81 TO 1985-86



Source: Health and Welfare

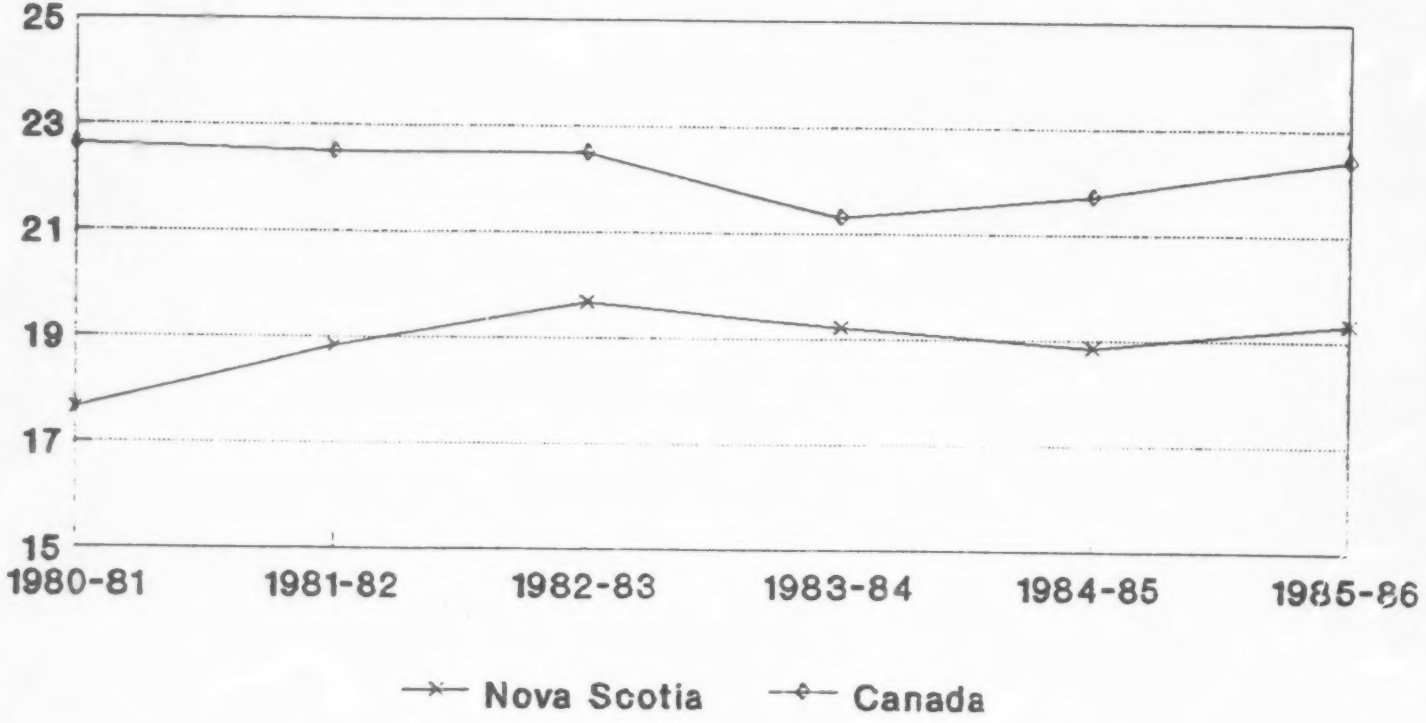
C10

FIGURE 14: PHYSICIAN ANAESTHESIA SERVICES PER 1,000 POPULATION NOVA SCOTIA & CANADA, 1980-81 TO 1985-86



Source: Health and Welfare

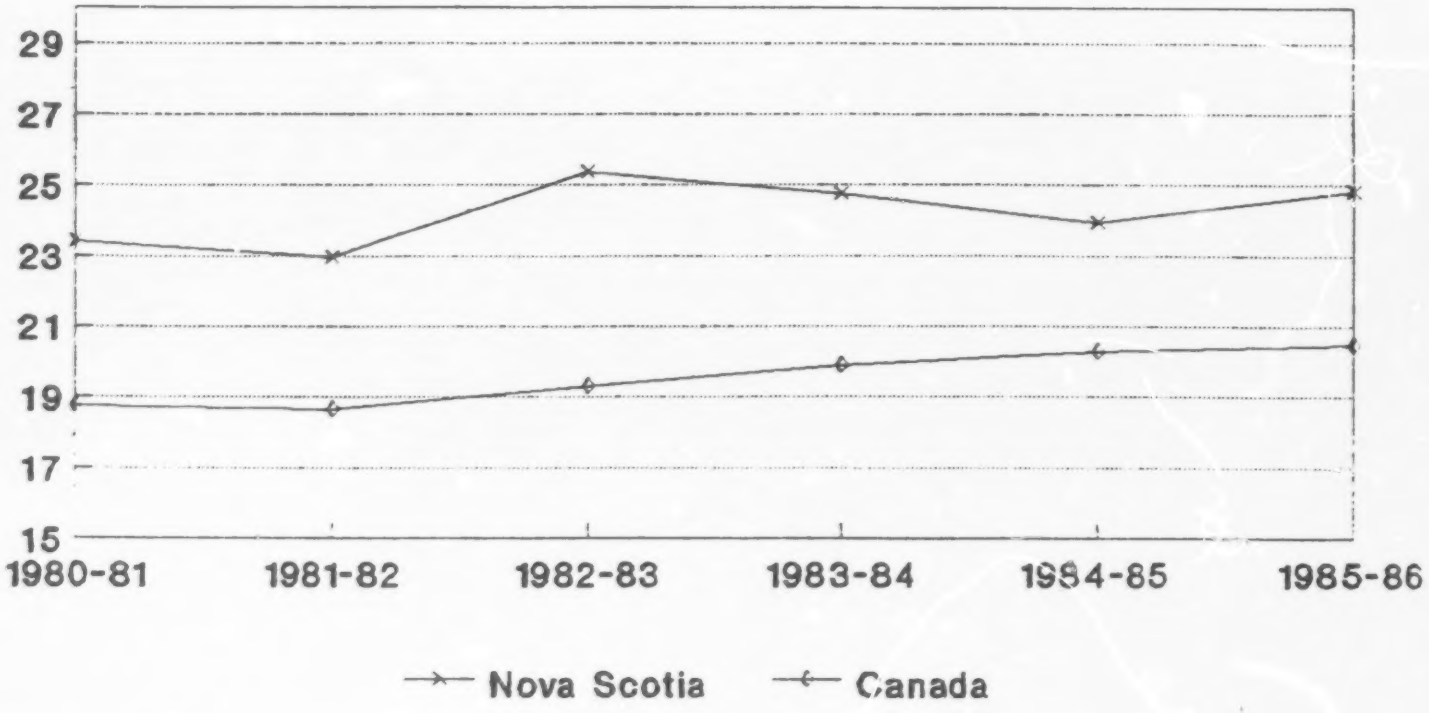
FIGURE 15: PHYSICIAN OBSTETRICAL SERVICES PER 1,000 POPULATION NOVA SCOTIA & CANADA, 1980-81 TO 1985-86



Source: Health and Welfare

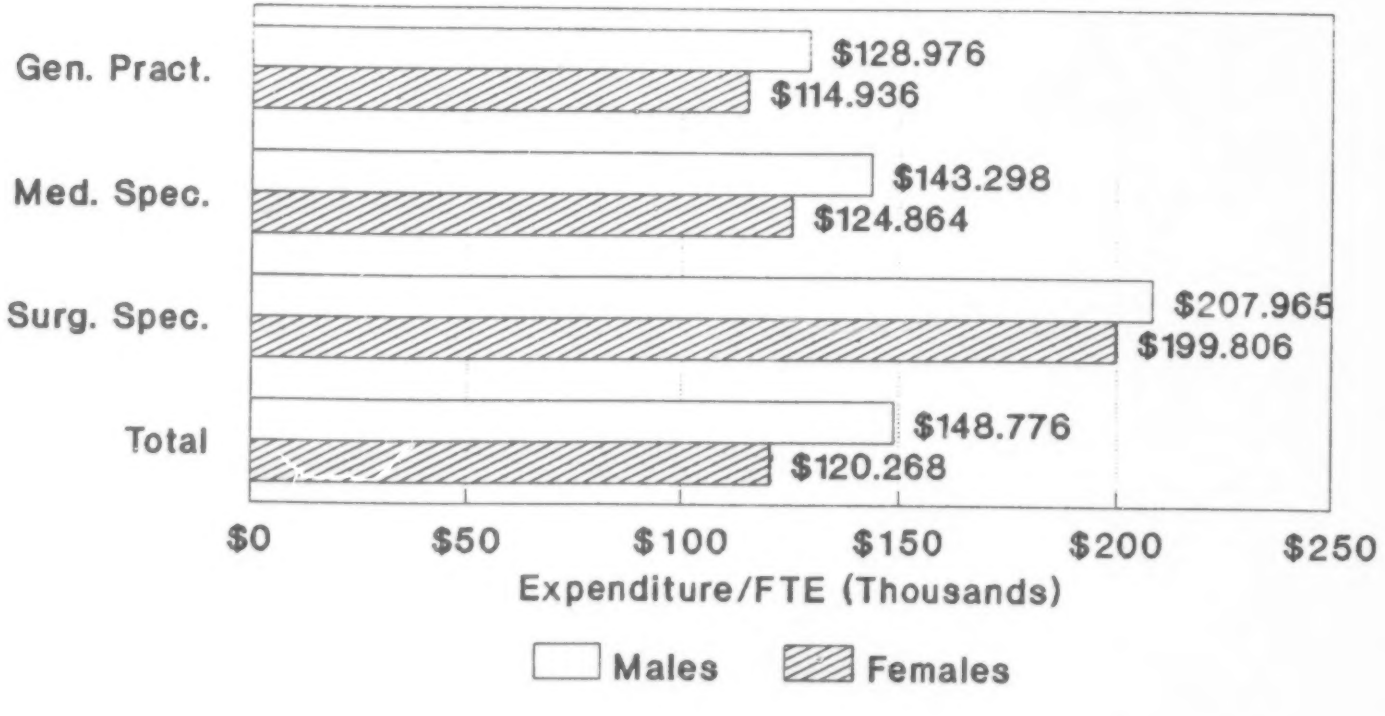
CS

FIGURE 16: PHYSICIAN SERVICES, SURGICAL ASSISTANCE PER 1,000 POPULATION NOVA SCOTIA & CANADA, 1980-81 TO 1985-86



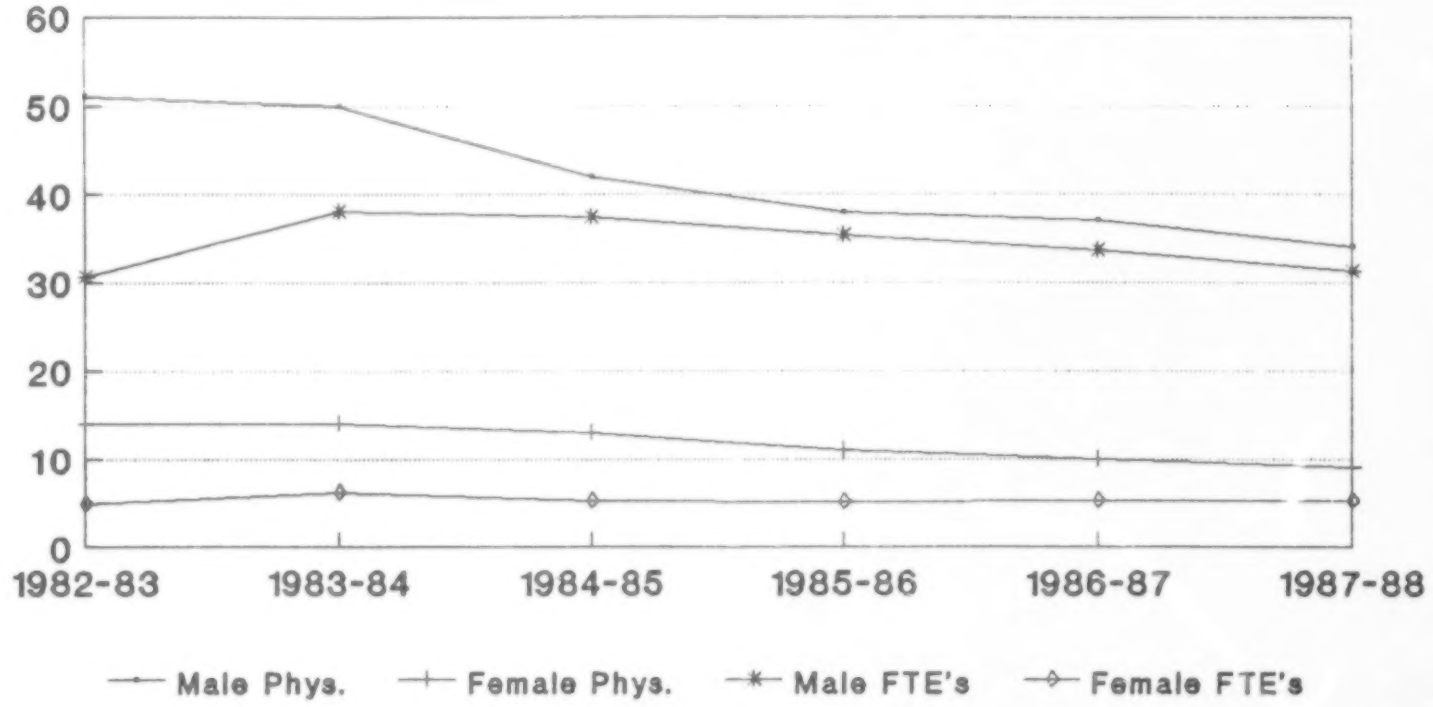
Source: Health and Welfare

FIGURE 17: AVERAGE MSI FEE-FOR-SERVICE EXPENDITURE PER FTE, BY SEX AND BY TYPE OF PHYSICIAN, 1987-88



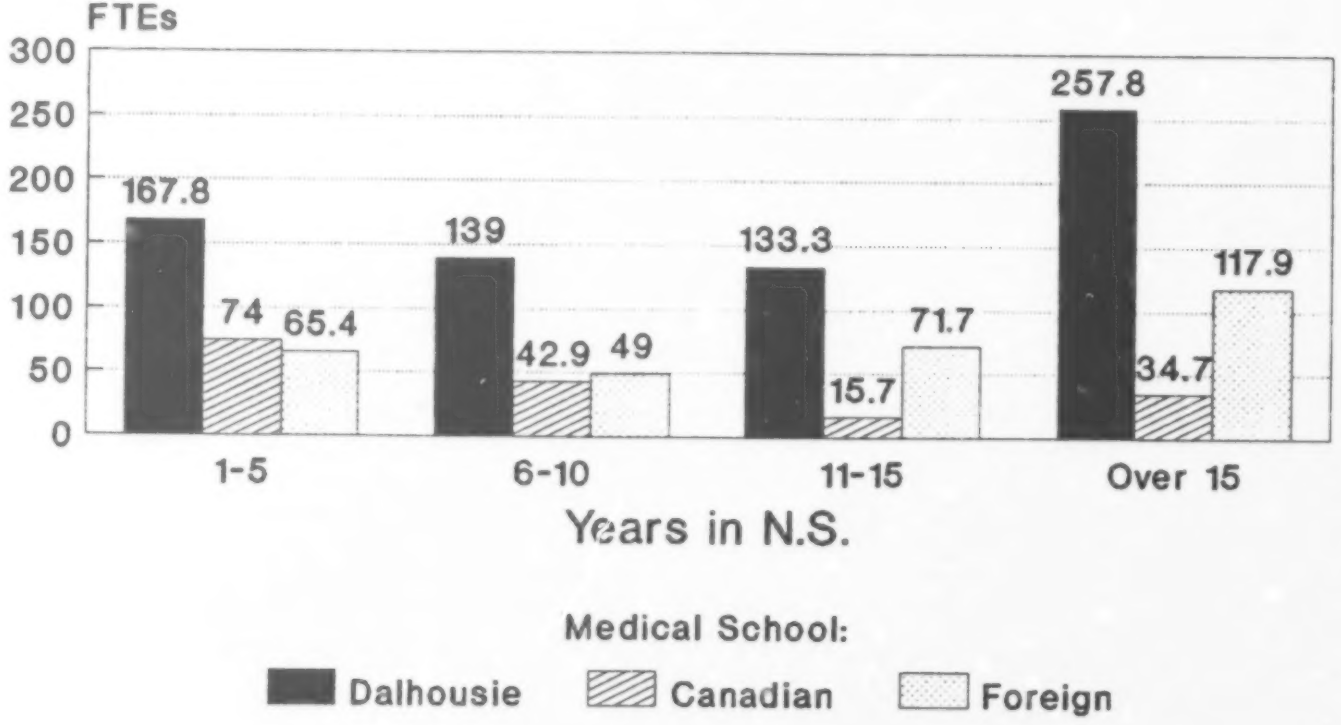
Source: Maritime Medical Care Inc.

FIGURE 18: 1980 AND 1981 GRADUATES PRACTICING IN NOVA SCOTIA, BY SEX * 1982-83 TO 1987-88



Source: Maritime Medical Care Inc.
* These are not necessarily Dal. grads.

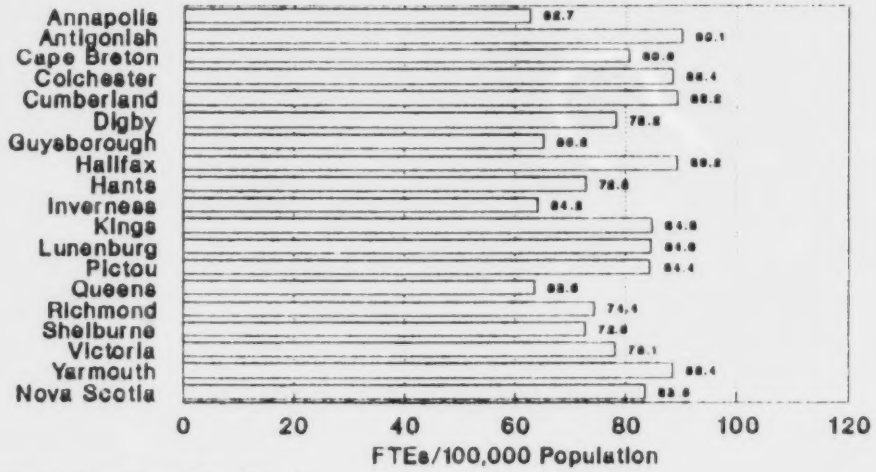
FIGURE 19: PHYSICIANS FTEs BY YEARS IN NOVA SCOTIA AND BY MEDICAL SCHOOL * 1987-88



Source: Maritime Medical Care Inc.
* Excluces phys. who ceased prac. '87-88

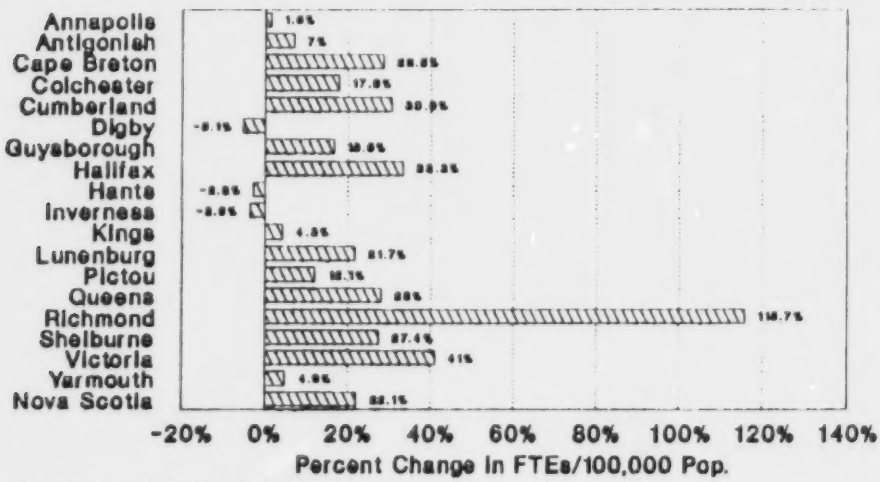
S16

FIGURE 20: FTEs PER 100,000 POPULATION BY COUNTY, GENERAL PRACTITIONERS 1987-88



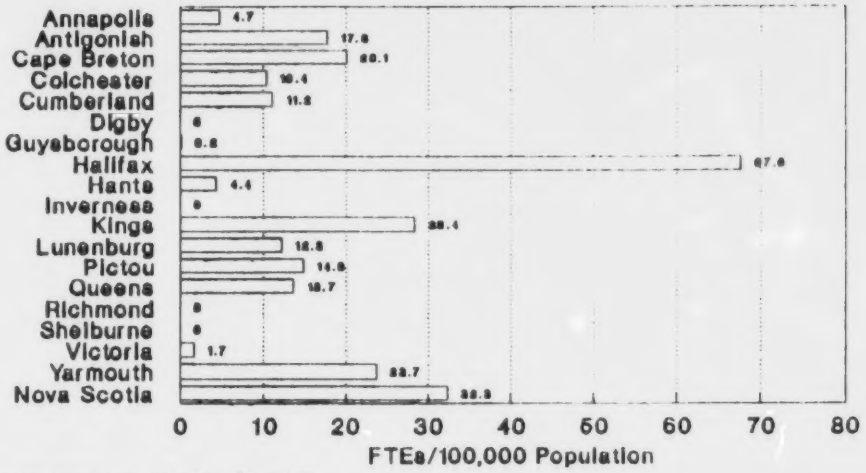
Source: Maritime Medical Care Inc.

FIGURE 21: PERCENT CHANGE IN FTEs PER 100,000 POPULATION, BY COUNTY GENERAL PRACTITIONERS, '77-78 TO '87-88



Source: Maritime Medical Care Inc.

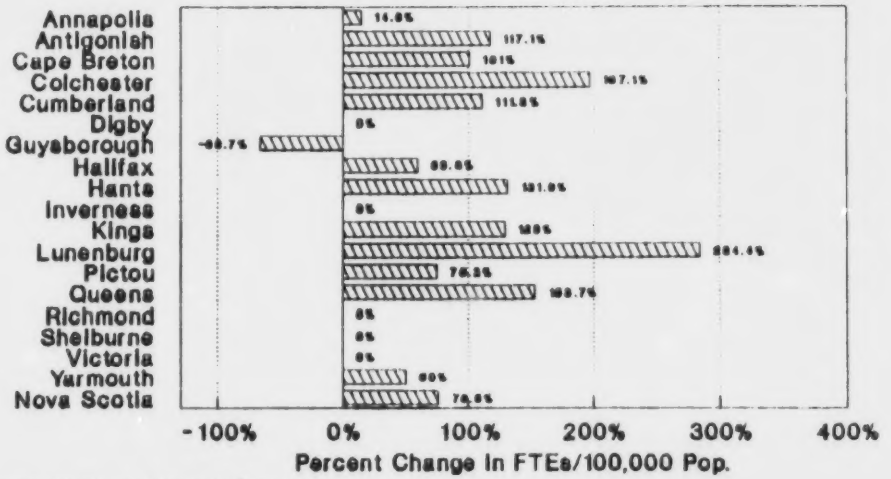
FIGURE 22: FTEs PER 100,000 POPULATION BY COUNTY, MEDICAL SPECIALISTS 1987-88



Source: Maritime Medical Care Inc.

819

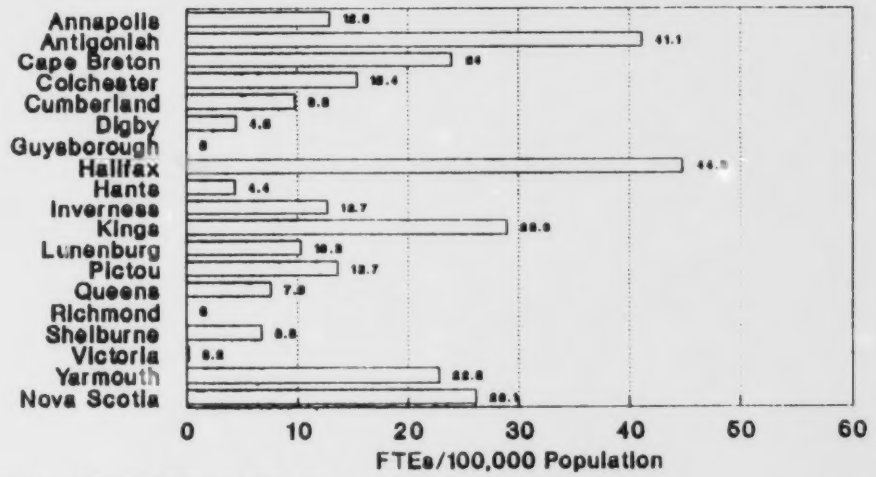
FIGURE 23: PERCENT CHANGE IN FTEs PER 100,000 POPULATION, BY COUNTY MEDICAL SPECIALISTS, '77-78 TO '87-88



Source: Maritime Medical Care Inc.

820

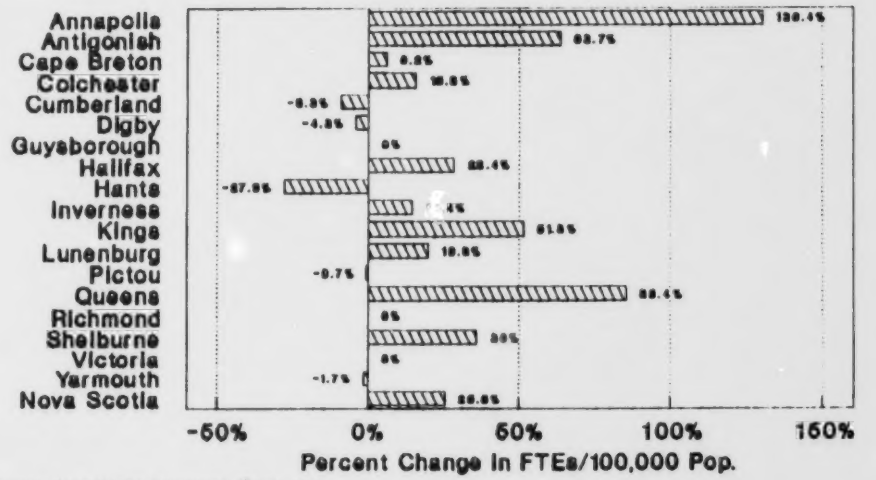
FIGURE 24: FTEs PER 100,000 POPULATION BY COUNTY, SURGICAL SPECIALISTS 1987-88



Source: Maritime Medical Care Inc.

821

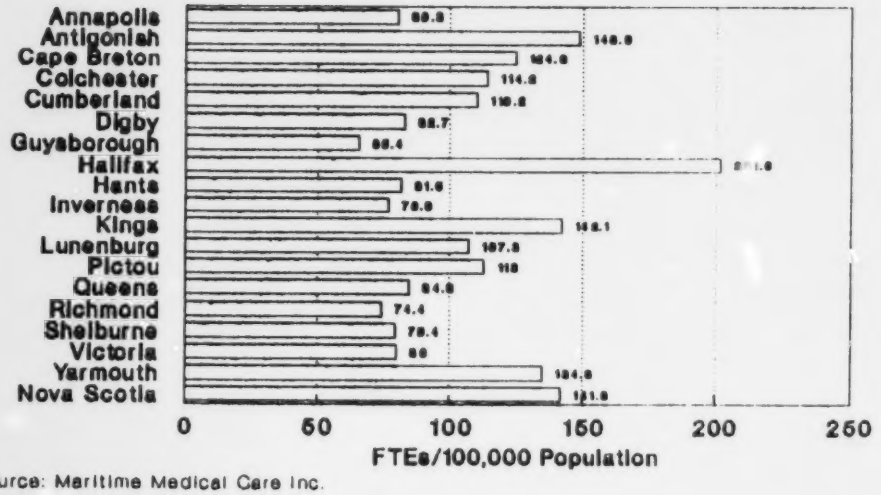
FIGURE 25: PERCENT CHANGE IN FTEs PER 100,000 POPULATION, BY COUNTY SURGICAL SPEICIALISTS, '77-78 TO '87-88



Source: Maritime Medical Care Inc

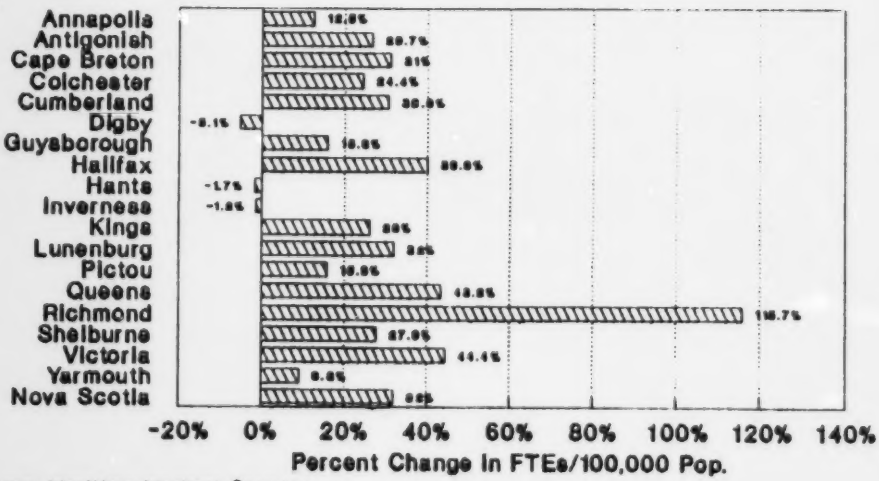
822

FIGURE 26: FTEs PER 100,000 POPULATION BY COUNTY, ALL PHYSICIANS 1987-88



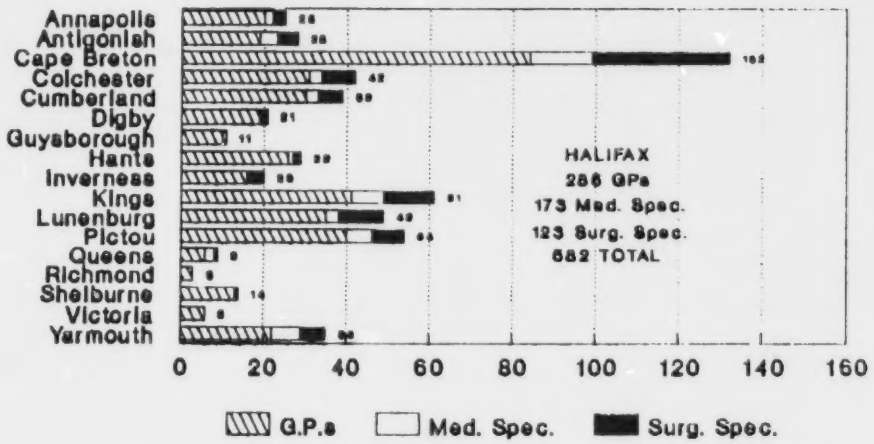
Source: Maritime Medical Care Inc.

FIGURE 27: PERCENT CHANGE IN FTEs PER 100,000 POPULATION, BY COUNTY ALL PHYSICIANS, '77-78 TO '87-88



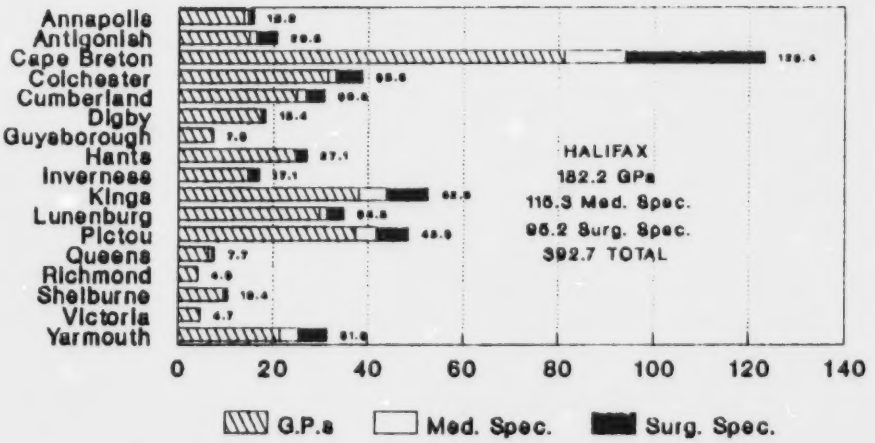
Source: Maritime Medical Care Inc.

FIGURE 28: NUMBER OF PHYSICIANS BY COUNTY AND BY TYPE OF PHYSICIAN 1977-78



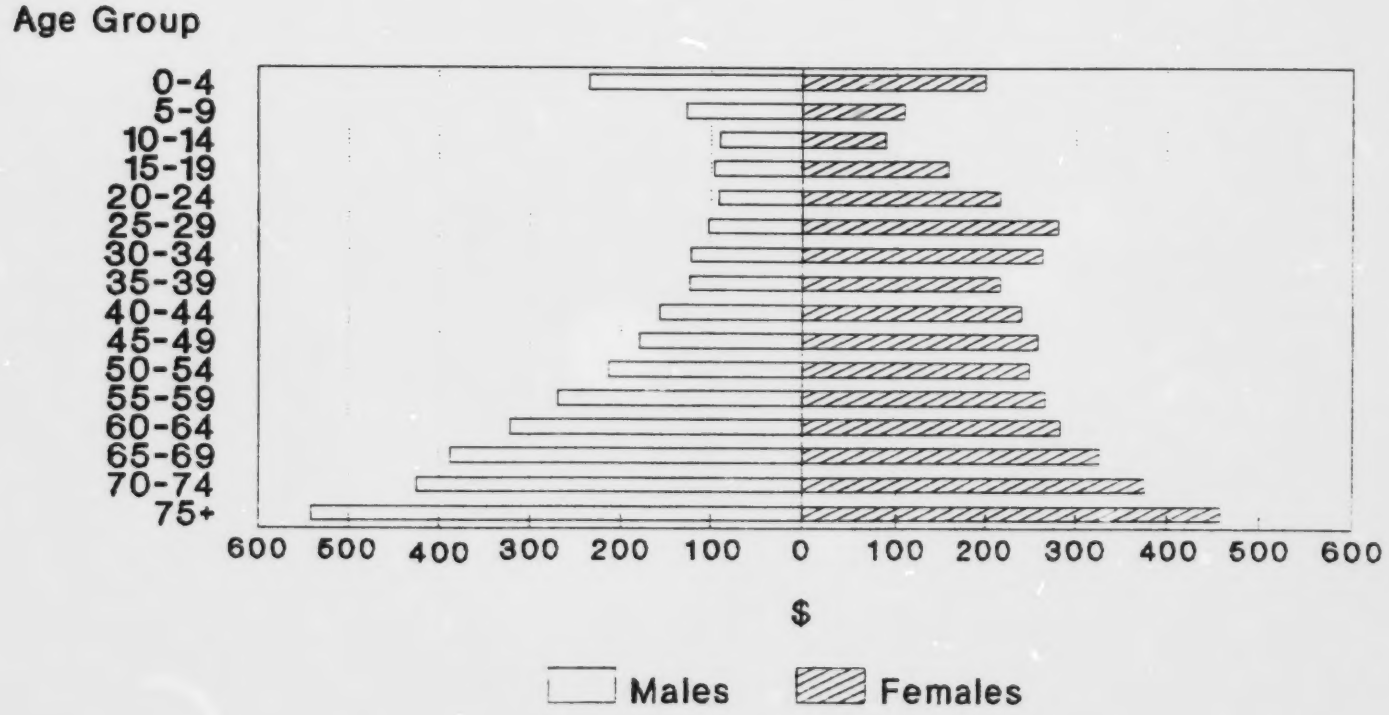
Source: Maritime Medical Care Inc.

FIGURE 29: NUMBER OF FTEs BY COUNTY AND BY TYPE OF PHYSICIAN 1977-78



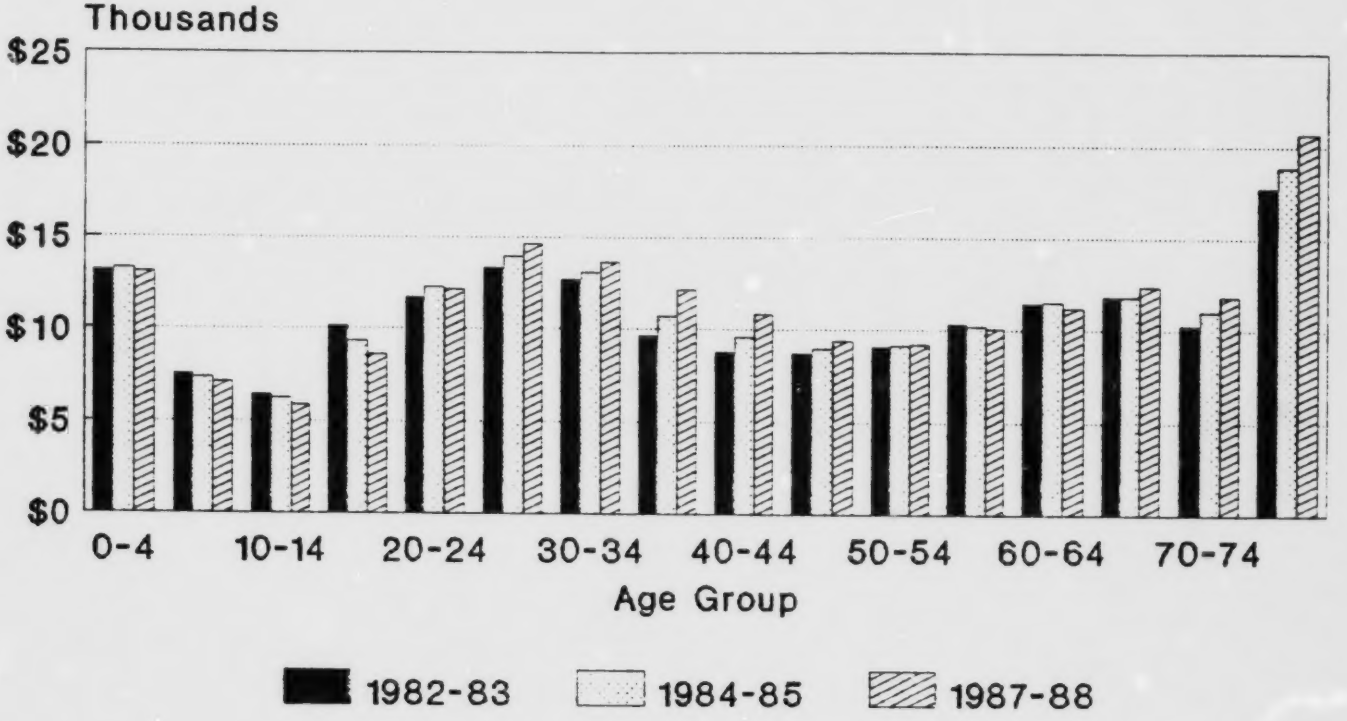
Source: Maritime Medical Care Inc.

FIGURE 25: EXPENDITURE PER INSURED POPULATION, BY AGE GROUP AND SEX 1987-88



Source: Maritime Medical Care Inc

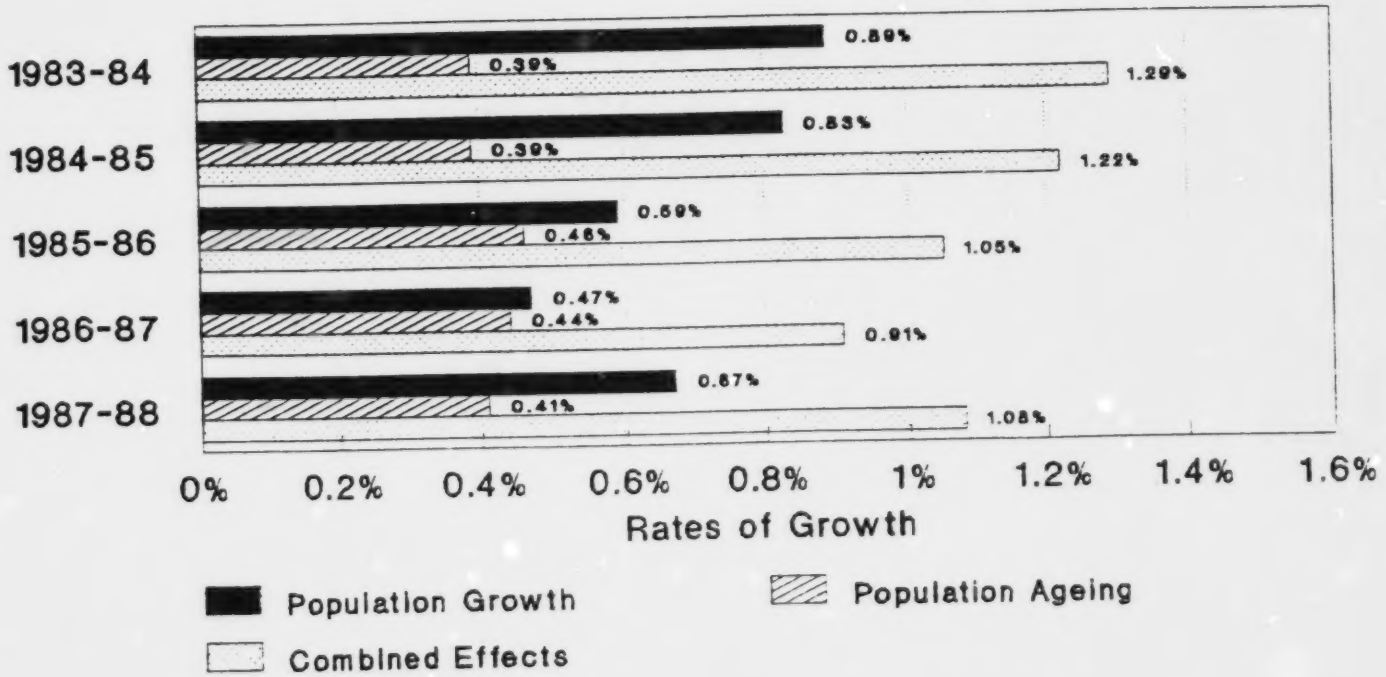
FIGURE 26: 1987-88 EXPENDITURE PER CAPITA MULTIPLIED BY THE INSURED POPULATION, '82-83, '84-85 AND '87-88



Source: Maritime Medical Care Inc.

U15

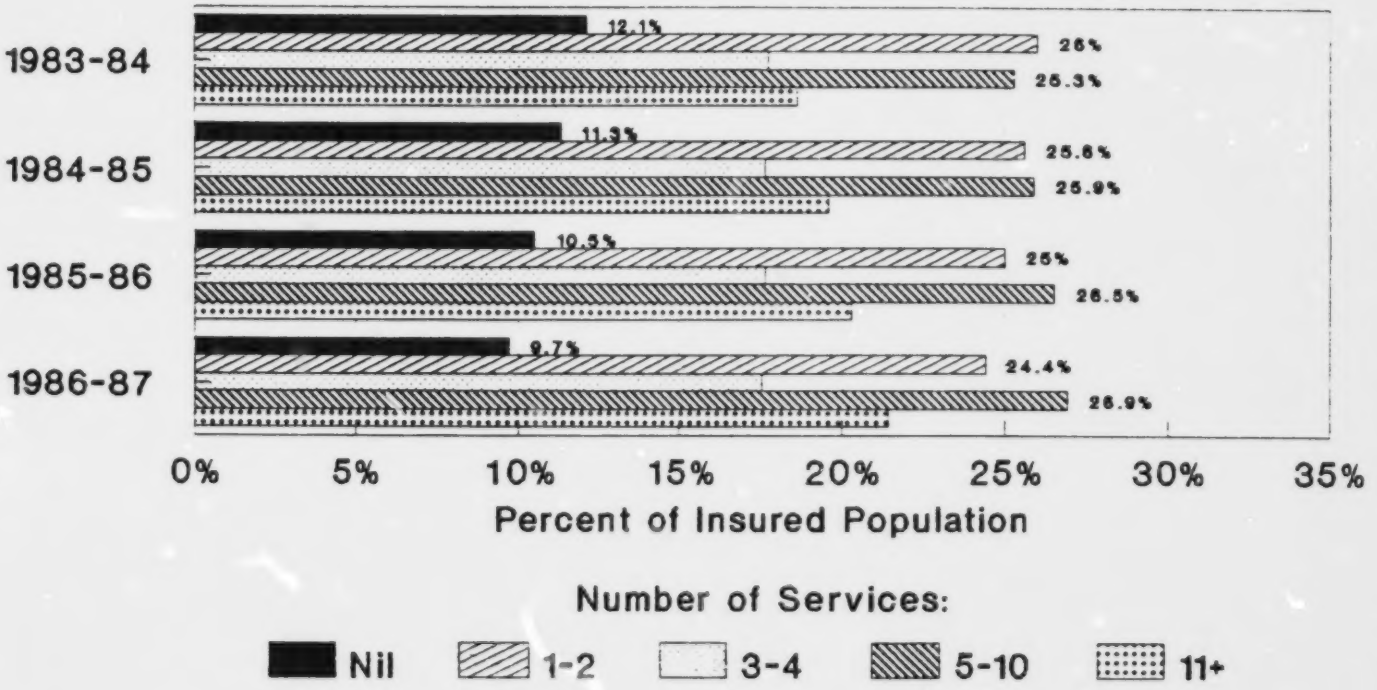
FIGURE 27: ANALYSIS OF THE EFFECTS OF POPULATION GROWTH AND POPULATION AGEING ON MSI EXPENDITURE, 1982-83 TO 1987-88



Source: Maritime Medical Care Inc.

U16

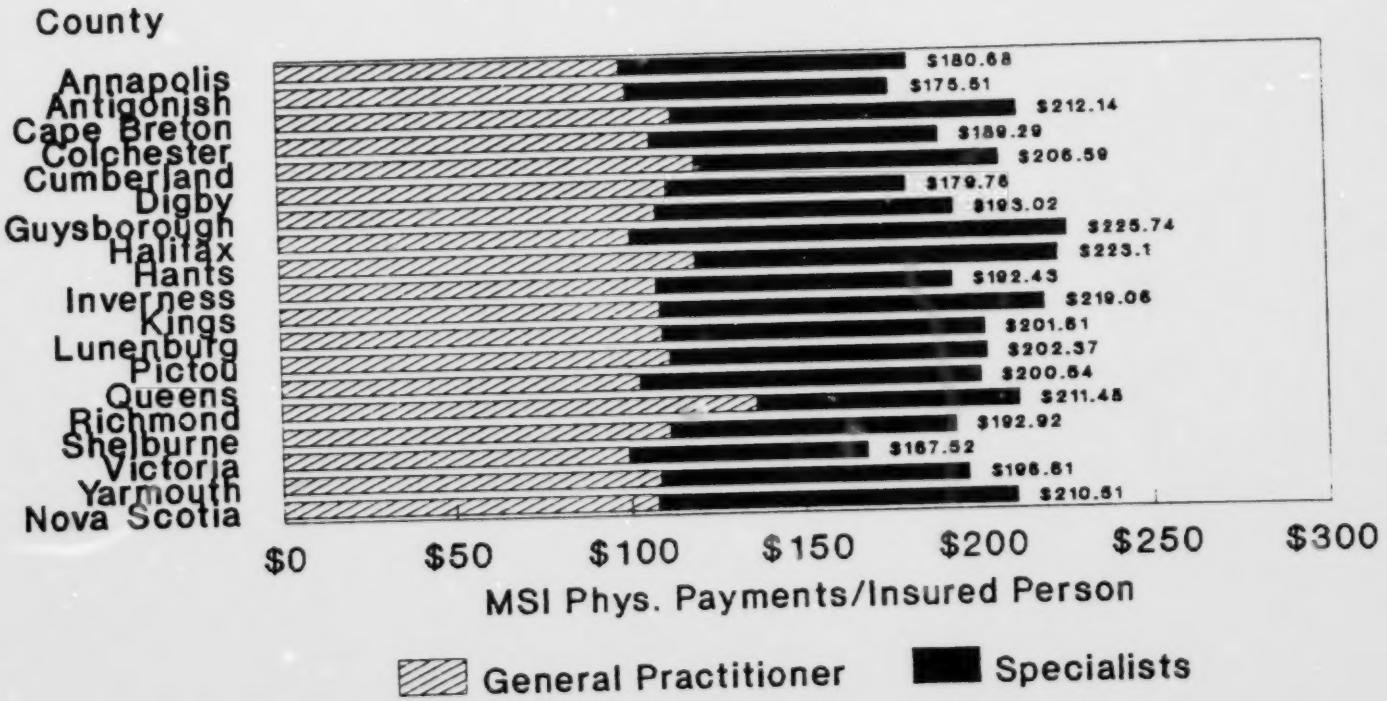
FIGURE 28: DISTRIBUTION OF THE INSURED POPULATION BY THE NUMBER OF SERVICES RECEIVED, 1983-84 TO 1986-87



Source: Maritime Medical Care Inc.

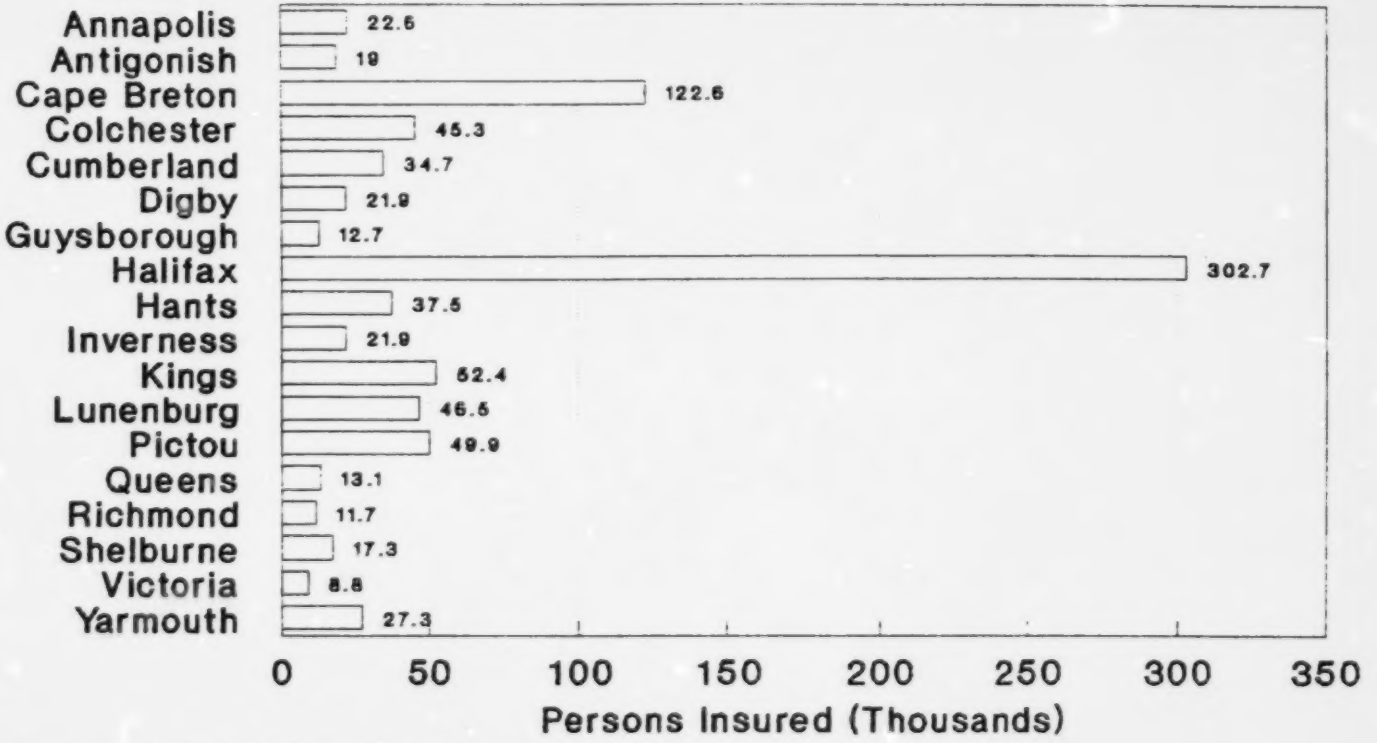
U19

FIGURE 29: M.S.I. PHYSICIAN PAYMENTS PER INSURED PERSON, BY COUNTY 1987-88



Source: Maritime Medical Care Inc.

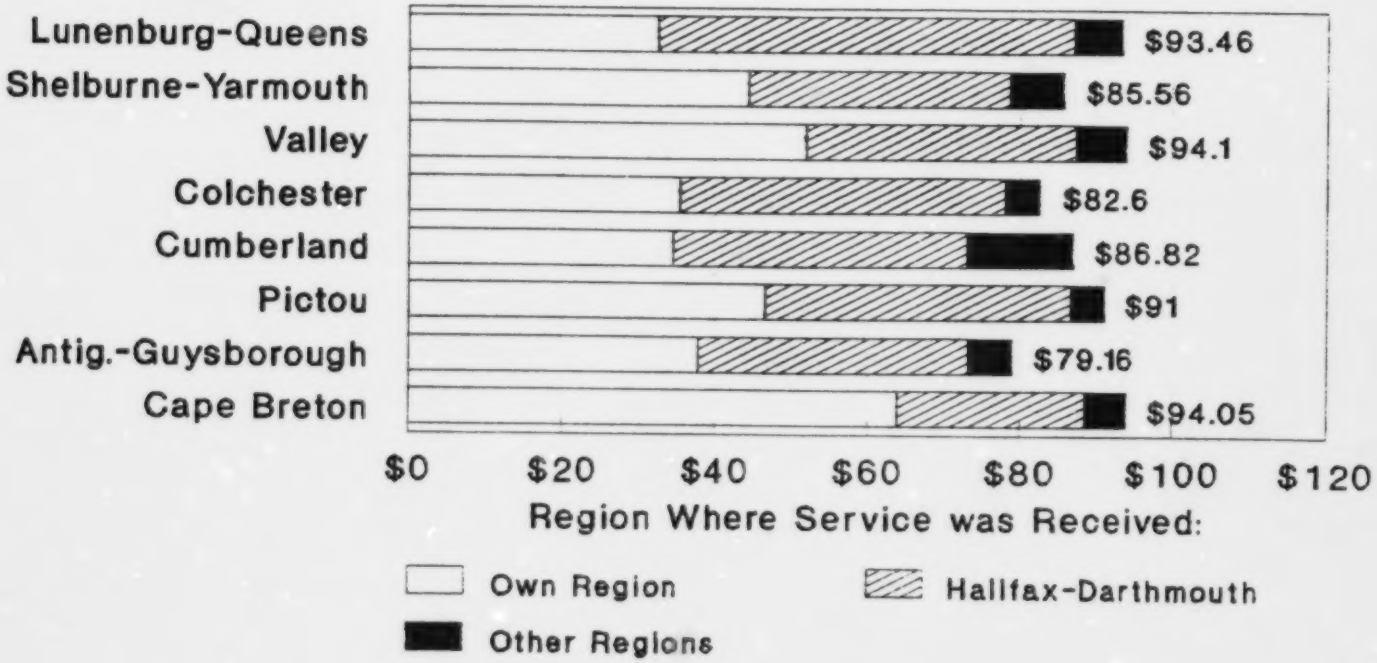
FIGURE 30: NUMBER OF PERSONS INSURED BY COUNTY OF RESIDENCE 1987-88



Source: Maritime Medical Care Inc.

U10

FIGURE 31: PER CAPITA EXPENDITURE ON SPECIALISTS SERVICES, BY REGION OF PATIENT'S RESIDENCE, 1987-88



Source: Maritime Medical Care Inc.

CHAPTER FIVE

DISCUSSION AND RECOMMENDATIONS

Introduction:

A set of primary **Goals** and major **Recommendations** that outline a comprehensive, integrated package of management strategies for physician human resources in Nova Scotia are presented in the following pages.

Achievement of any or all of these goals depends on the effective implementation of policies and programs which are the responsibility of various levels of government, public sector agencies, non-government organizations and private interests.

The format for presenting the **Goals** and **Recommendations** is as follows: statement of the goal, a brief description of the problems surrounding the issue, followed by a set of recommendation(s).

The following major goals have been targeted:

1. **To Achieve a Managed Growth of Expenditures for Physician Services**

The intent of this goal is to control expenditures for physician services by targeting an annual growth rate in M.S.I. expenditures.

To achieve this goal two policy options are presented for consideration, in order of preference.

1. Preferred Option: **Targeted Rate of Growth for Physician Expenditures**

2. Alternative Option: **Differential Fee Payments**

In addition, to achieve the goal stated, two management strategies are also presented:

1. Remuneration of Physicians
2. Appropriate Medical Services Insurance Coverage

2. **To Achieve an Orderly Growth of Physician Human Resources**

This entails the planned growth of particular specialties to ensure an adequate supply of physicians to meet the health needs of the public.

To achieve this goal, policy recommendations encompassing the following areas will be presented:

1. Restricted Issuance of M.S.I. Billing Numbers
2. Legislation
3. Licensure
4. Dalhousie University School of Medicine
5. Immigration Policies

3. **To Ensure an Equitable Geographic Distribution of Physicians and to Ensure an Appropriate Mix of Physician Services**

This goal focuses on the distribution of medical services to ensure all regions have access to appropriate medical care.

To achieve this goal, policy recommendations concerning the following will be presented:

1. Incentive Plans
2. Medical Staffing of Hospitals
3. Specialty Services

4. **To Ensure the Appropriate Administrative and Planning Structures and Mechanisms Are in Place to Implement the Recommendations Outlined in this Report.**

Recommendations on the following aspects of appropriate administration and planning are presented:

1. Management Information Systems
2. Committee Structures
3. Federal/Provincial/Regional Physician Human Resource Planning Systems

It is to be noted this is a **preliminary report** for the Royal Commission on Health Care that presents a framework for a managed growth strategy for physician human resources. It is not intended to identify geographic or specialty specific physician requirements for Nova Scotia.

GOAL 1: To Achieve a Managed Growth of Expenditures for Physician Services.

Preferred Option: Targeted Rate of Growth for Physician Expenditures

Discussion:

To exercise fiscal responsibility, a government must be able to control the rate of growth of its public expenditures, in all programs.

Placement of a ceiling on the rate of growth of total MSI expenditures converts an open-ended, volume-driven, fee-for-service system to a closed expenditure system. This is comparable to most government programmes, where rates of growth of public expenditures are determined, within narrow limits through annual budget reviews.

Adoption of a mechanism to limit the rate of growth of MSI expenditures - or adoption of some alternative system capable of achieving the same end - should be viewed as part of an evolutionary process.

The introduction of effective ceilings on the rate of growth of MSI expenditures will not compromise the access to high quality medical care now enjoyed by Nova Scotians, but will have the effect of limiting the **rate of growth** of medical care services.

The establishment of a ceiling on the annual rate of growth of global expenditures would allow the Medical Services Insurance fee-for-service system to continue to function as a volume-driven system up to the point where the expenditure ceiling is reached. Subsequently, mechanisms would be applied to prevent expenditures from rising further in that fiscal period. For example, if the global expenditure ceiling is exceeded, a year-end uniform percentage reduction in fees would be applied to all types of medical care services. This spreads the burden of any year-end adjustment evenly across all fee-for-service clinicians. It also leaves unchanged the relative values of different types of services.

Neutrality:

The neutrality of this adjustment mechanism avoids the introduction of changes in financial incentives which might distort patterns of practice at the end a fiscal period, and thereby disrupt the provision and utilization of medical care services.

This particular retroactive adjustment mechanism is also likely to have little if any effect on the annual volume of services provided by physicians. Total payments to individual

fee-for-service physicians continue to be determined by the volume and types of services provided, irrespective of when they are provided during a fiscal year. Thus, the delivery of services should not be affected by whether or not a global ceiling is reached.

Because of its unobtrusive nature and its neutral treatment of individual physicians and services, a global capping strategy is unlikely to distort the supply and distribution of medical care services and patterns of practice in Nova Scotia. If such changes are deemed desirable, other policy instruments should be developed to facilitate such change.

Year-end Adjustments:

The magnitude of such a year-end adjustment is likely to be small, based on recent experience of other provinces. If, for example, total fee-for-service billings exceeded the ceiling by 2%, the year end downward adjustment would be approximately 2%. This could be accomplished administratively by holding back, say 5% of billings during the fiscal year and then making an adjusted lump sum payment at year-end.

Unobtrusive:

Enforcing a managed rate of growth for expenditures is probably the "least intrusive" of the policy and administrative options available to achieve better control over the rate of growth of total M.S.I. expenditures. It is not intrusive in that a strategy to limit growth does not alter important aspects of the market for physicians services, such as licensure, entry to practice, choice of practice location, choice of physician, or doctor-patient relationships.

For this and other reasons, the strategy of adopting a managed rate of growth of expenditures for physicians services publicly, funded by the Province of Nova Scotia, is less likely to be subjected to a successful legal challenge.

A Controlled Rate of Growth of Expenditures, By Region

The principle of placing a ceiling on the rate of growth of global expenditures on M.S.I. services may be extended to the nine hospital regions of Nova Scotia. This would provide another policy instrument that could be used to promote a more even geographic pattern of medical care utilization per capita across hospital regions.

A regional budgetary system would allow separate target rates of growth, or expenditure ceilings, to be set for each hospital region. Hospital regions with relatively low age-sex adjusted medical care utilization rates per capita, for example, could be permitted to have a higher annual rate of growth in utilization per capita, and vise versa. Regional differences in age-sex adjusted utilization per capita would narrow over time.

The separate regional ceilings chosen would be consistent with the overall provincial ceiling on the rate of growth of M.S.I. expenditures.

It is recommended that the payment for physicians services continue to be administered centrally, to take advantage of the infrastructure already developed for this purpose. In addition, the cost advantages of having one agency dedicated to administration of physician service programs rather than eight, would facilitate achievement of horizontal equity in the payment of physicians who provide similar services, but are paid under different remuneration systems.

This central administration agency, within the Health Services and Insurance Commission, would interact with the Medical Society of Nova Scotia in matters related to physician compensation and the delivery of services. The benefit schedules for physicians services would apply province-wide, for all remuneration systems. Year-end adjustments to remain within expenditure ceilings would differ across hospital regions. Special provisions might be made to encourage physicians to established practices in communities which have had problems attracting and retaining physicians.

Once expenditure ceilings are reached in the separate hospital regions, however, each region will apply its own year-end adjustment factor to benefit rates paid to physicians who provided M.S.I. services to residents of that hospital region, irrespective of whether the services were provided within or outside the region. The year-end retroactive percentage reduction in benefit rates would differ somewhat across hospital regions, reflecting regional differences in actual growth in physician expenditures compared to the ceiling set for that hospital region.

Since the actual rate of growth of total M.S.I. expenditures is in large part determined by the rate of growth of full-time-equivalent physicians, those regions experiencing higher rates of growth in physician manpower will ordinarily require a larger year-end adjustment of benefit rates in order not to exceed their expenditure ceiling. Thus, a small financial incentive will reward physicians who establish or expand practices in hospital regions which have lower rates of growth in physician manpower. Over time, this will help to achieve a more even distribution of physician manpower across regions.

It is therefore **RECOMMENDED:**

1. **That the province adopt a long-run target rate of growth for real expenditures in the Medical Services Insurance program, which would serve as a guide to resource allocation over, say, a five or ten year period, and which would be subject to periodic review.**

2. That the long-run target rate of growth adopted take into account the projected growth and ageing of Nova Scotia's population, and the ongoing discovery, development and implementation of medical technology, which expands the list of services insured under the Medical Services Insurance program.

3. That the province adopt an explicit annual target rate of growth in expenditures for physicians services, expressed in constant dollars, and advise the Health Services and Insurance Commission of this target.

4. That the province, through the Health Services and Insurance Commission, develop procedures and financial agreements that will ensure that actual rates of growth in expenditures for physicians services do not exceed the target rate of growth adopted.

5. That a target rate of growth in the range of 1% to 2% annually in constant dollar M.S.I. expenditures be considered for adoption. Such a target would ensure there is no decline in real M.S.I. expenditures per capita or in utilization of physicians services per capita. It would also provide for a small annual increase in new services insured under M.S.I, and is a realistic target rate of real growth in M.S.I. expenditures given the actual rate of growth of real income per capita in recent decades and the rate of growth in real income per capita that can be expected in future.

6. That a formula be developed which will fairly assign limits on the rate of growth of expenditures for physicians services in a region on behalf of residents of those health regions. A working group representing interested parties should be formed to deal with technical issues concerning the objective measurement of age-sex adjusted medical care needs, by health region, and to recommend a formula for assigning region-specific allowable rates of growth in M.S.I. expenditures.

7. That the H.S.I.C. be given a free hand to explore alternative financial agreements with the Medical Society of Nova Scotia, e.g., a global cap on MSI expenditures per year achieved through retrospective fee adjustments once the ceiling is reached, so long as the agreement reached is compatible with the target set by Cabinet.

GOAL 1: To Achieve a Managed Growth of Expenditures for Physician Services

Alternative Option: Differential Fee Payments

Discussion:

If the target growth rate for physician expenditures is not implemented, a managed rate of growth can still be achieved in part by establishing ceilings on physician incomes. This option has the added benefit of providing incentives for redistribution of physician services from urban areas to rural areas of the province.

It is therefore **RECOMMENDED:**

1. That fee-for-service earnings of General Practitioners be capped for three years, after which the situation should be re-evaluated. GP's fee-for-service earnings will be based on the following formula:

   - GP's practicing in the Halifax County area will be permitted to receive reimbursement for 100% of their billings up to the 1988 average income for Nova Scotia GP's. Beyond the average income ceiling, the GP's will only be reimbursed for 50% of their billings.

   - GP's practicing in all other areas of the province will be permitted to receive reimbursement for 100% of their billing up to the 1988 average income for Nova Scotia GP's. Beyond the average income ceiling, the GP's will only be reimbursed for 70% of their billings.

2. For specialists, a similar situation is proposed. The time period for the income caps is three years, after which the process should be re-evaluated. The following process should be used to determine fee-for-service payments to specialists:

   a) Average income for each specialty should be determined.

   b) Specialists in Halifax County will be reimbursed for 100% of their billings until they reach the average income ceiling. Fee-for-service billing in excess of the average income ceiling will be discounted by 50%.

   c) Specialists in all other areas of the province will be reimbursed for 100% of their billings until they reach the average income ceiling. Fee-for-service billings in excess of the average income ceiling will be discounted by 25%.

GOAL 1: To Achieve a Managed Growth of Expenditures for Physician Services.

STRATEGY 1: Remuneration of Physicians

Discussion:

Questions continually arise about the fairness of the remuneration systems used to pay physicians who provide services insured under Nova Scotia's M.S.I. programme. These equity questions have been dealt with on an ongoing basis by the Health Services Insurance Commission and the Medical Society of Nova Scotia.

On one level, this equity discussion asks what is a fair relative value to place on the thousands of different types of medical care services insured under the M.S.I. programme. The structure of the M.S.I. Benefits Schedule reflects the negotiations which have occurred annually since the M.S.I. program was established in 1969.

On a second level, the equity discussion centers on what constitutes fair differences in (net) income from clinical practice, and more generally, from professional practice, across specialty groups.

At a third level, equity questions arise about the wide spread of earnings among physicians practicing within any given specialty group.

The factors that determine physician earnings are many, complex, and not fully understood. The findings from comprehensive statistical studies of physician incomes in Canada, that standardize for the influence of dozens of professional, personal and local market factors, account for a good deal of observed differences in the incomes across individual physicians. Studies still are unable to account for a considerable portion of the differences in earnings observed both between physicians practicing in different specialties, and between physicians practicing within the same specialty. Differences in the relative value of fee-for-service benefits paid for different services is only one of many factors which contributes to differences in gross and net clinical and professional earnings.

Nova Scotia data on the distribution of physician incomes, as reflected in gross M.S.I. payments to physicians in different specialties and within the same specialty, are consistent with comparable data from other provinces. That is, there are sizeable differences in the mean gross clinical incomes, both across specialties and within specialties. The order of magnitude of differences in gross clinical incomes across specialties is much less than the order of magnitude of differences in gross clinical incomes between specialties.

M.S.I. data cannot show net practice income, after deducting practice expenses, which differs from gross practice income because expense ratios vary considerably both across specialties and within specialties.

Questions have been raised concerning the equity of the fee-for-service remuneration system, which permits a wide range of M.S.I. gross practice income to be earned by physicians practicing the same specialty.

It is therefore **RECOMMENDED:**

1. **That modes and rates of remuneration for those physician services covered under the M.S.I. program be subject to ongoing negotiation involving the H.S.I.C., the Nova Scotia Medical Society (N.S.M.S.) and the Department of Health and Fitness.**

2. **That the Health Services and Insurance Commission continue to work with the Nova Scotia Medical Society to refine the schedule of fees paid for insured services, so that the net earnings per hour provided for different services fairly reflect differences in physician time, skills, stress, contribution to patient health and wellbeing, and other relevant factors which may vary by type of service provided.**

3. **That the Health Services and Insurance Commission, in negotiating M.S.I. fee schedules with the Nova Scotia Medical Society, monitor differences in net professional earnings across specialties with a view to achieving equitable differences within Nova Scotia and to ensure that relative earnings here do not diverge greatly from relative earnings elsewhere in Canada.**

4. **That there is a delicate trade-off between equity and efficiency objectives, insofar as remuneration systems are concerned. It is recommended that the Health Services and Insurance Commission and the Medical Society of Nova Scotia jointly examine various modifications to the fee-for-service system presently in place which would reduce the within-specialty range of earnings while not eroding the incentives to provide vital medical care services.**

GOAL 1: To Achieve A Managed Growth of Expenditures for Physician Services

STRATEGY 2: Appropriate Medical Services Insurance Coverage

Discussion:

It is assumed that Nova Scotia will continue to promote the health and wellbeing of the public through financing required medical care services and ensuring an appropriate range of services provided under M.S.I.

It is therefore **RECOMMENDED:**

1. That the insured services covered under the Medical Services Insurance program be reviewed regularly in light of evolving scientific evidence on the clinical-effectiveness and cost-effectiveness of specific health care services. New and cost-effective services and procedures may be added to insured services in a timely fashion. Other services made redundant by advances in clinical medicine and the health sciences may be removed from insured services.

2. That the Health Services and Insurance Commission work with the Medical Society of Nova Scotia to develop standards regarding the appropriate use of expensive medical technology, both to promote good quality medical care and to ensure the effective use of such technology.

3. That the Health Services and Insurance Commission work with the Medical Society of Nova Scotia to develop standards and review mechanisms to promote appropriate patterns of practice within specialties, and appropriate patterns of referral among specialties.

4. That given the broad spectrum of medical care needs - which range from life threatening situations to very minor complaints - the Medical Services Insurance program should be subject to periodic policy review regarding which services may or may not deserve M.S.I. coverage.

GOAL 2: To Achieve an Orderly Growth of Physician Human Resources

STRATEGY 1: Restricted Issuance of M.S.I. Billing Numbers in Halifax County.

Discussion:

In recognition that the primary determinant of the rate of growth of physicians in Nova Scotia is the rate of growth of physicians in Canada, the province should give high priority to the achievement of a federal-provincial agreement for a substantial reduction in the rate of growth of physicians manpower in Canada, which is currently more than double the rate of growth of population.

In order to reduce the long run rate of growth of real expenditures on physician services, which is strongly linked to the rate of growth in the number of full-time-equivalent physicians, policies be adopted which will, directly or indirectly, reduce the rate of growth of physician manpower in Nova Scotia so that it is commensurate with the rate of growth of Nova Scotia's population.

Perhaps the most innovative attempt in Canada to control physician supply and distribution has been in British Columbia. The impetus behind billing number restriction was that for each additional physician in the system enormous costs were generated, both in fees paid and additional costs; a figure ranging from $75,000 to $400,000. By restricting billing numbers both the supply and distribution of physicians could be controlled.

Billing Numbers [8]

In July of 1983 the B.C. government introduced Bill 24, later to be known as Bill 41. This legislation included the specific right of the Medical Services Commission to limit the allocation of billing numbers. After numerous changes to the legislation and several legal battles Bill 41 was defeated.

Late in 1988 there was another court challenge and the Supreme Court found in favour of the medical community and struck down the billing numbers law. Shortly after the law was quashed more than 2000 billing numbers were issued.

The courts ruled that the law was discriminatory and

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8. For a more indepth analysis of B.C.'s efforts to control billing numbers and the desired outcome of the process please refer to: "Barer, M.L. (Spring 1988). Regulating physician supply: The evolution of British Columbias's Bill 41. Journal of Health Politics, Policy and Law, 13(1), 1- 25.

unconstitutional under the rights protecting mobility, the right to liberty and equality of the charter (Section 7). There were several procedural and administrative flaws in Bill 41 which made the Bill open to legal criticism. The Bill was found to be prohibitive to physicians wanting to pursue their profession and did not permit freedom of mobility.

The restriction of access to medicare billing numbers infringed the principles of fundamental justice because:

1. it did not use the least intrusive means to achieve its goals,

2. it is arbitrary (i.e. the population/physician ratios were not founded on fact),

3. it discriminates between newcomer physicians and established practitioners, and

4. its procedure for considering applications for new billing numbers was inadequate.

The Supreme Court decision does not necessarily mean that billing numbers are a legally inappropriate method of restricting supply. There were a number of problems with the Supreme Court's findings[9] and it is plausible that similar legislation could be introduced in another province if major administrative changes were implemented.

If restricting billing numbers is to be considered, the administrative structure would have to be designed to protect the human rights of physicians under the charter and the principles of fundamental justice would have to be upheld.

Restrictions on the number of new billing numbers granted each year could be implemented, but there would be a need for accurate and accountable data (physician population ratios would be inadequate for this purpose) that would justify the restrictions.

The major advantage of restricting billing numbers is that it is an effective administrative tool for controlling both the supply and distribution of physicians on either a provincial or regional basis. The major disadvantage is the problem associated with being able to adequately determine the number of physicians needed to provide adequate medical services in the province.

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9. See Lepovsky (October 1989). A Problematic Judicial Foray into Legislative Policy-Making Under Section 7 of the Charter. Canadian Bar Review.

It is therefore **RECOMMENDED:**

1. **That there be a ceiling imposed on the number of GPs who are issued billing numbers in Halifax County over the next three years. Growth in the next three years will be reduced to 3% in the first year, 2% in the second year and 1% in the third year. After the three year period is complete the supply situation should be reviewed.**

GOAL 2: To Achieve an Orderly Growth of Physician Human Resources

STRATEGY 2: Legislation

Discussion:

A primary goal of health professional legislation is to provide both public protection and professional accountability. It must be cautioned however, that legislative provisions respecting practice domain, exclusivity of practice and title, entry-to-practice requirements, the right to set practice standards, and inter-occupational and intra-occupational control, often have major impacts on manpower supply, service costs, costs of training, utilization and deployment of human resources, career and manpower mobility, and the overall adaptability of the health care system.

Recognizing the potential impact of statutory regulation of health occupations on health human resources, it is important that the mechanisms for achieving the goals of public protection and professional accountability with regards to physician human resources are well planned and coordinated at provincial, regional and national levels.

It is important that the Nova Scotia Medical Act provide sufficient flexibility to allow government, in consultation with the medical community, to develop alternative approaches to physician human resources management, to reconsider the appropriateness of the current mix of health personnel in light of the future service needs of Nova Scotians, and to explore other health care delivery strategies.

It is therefore **RECOMMENDED:**

1. **That the Nova Scotia Medical Act be amended to require the Nova Scotia Provincial Medical Board to receive approval from Cabinet before incorporating any changes to the Regulations under the Act.**

2. **That the Nova Scotia Medical Act be amended to require the Provincial Medical Board to adopt policies and regulations consistent with the long-term health strategy goals and medical manpower policies and guidelines as adopted and directed by Cabinet.**

GOAL 2: To Achieve an Orderly Growth of Physician Human Resources

STRATEGY 3: Licensure

Discussion:

The Federation of Provincial Licensing Authorities of Canada has declared that all physicians will require two-years pre-licensure training to be eligible to practice medicine in Canada. It is understood that all provincial licensing authorities, including Nova Scotia, will have implemented this requirement by 1993. While this policy has lead to a number of complications with regards to the various paths to licensure available to Canadian graduates, the situation has become considerably more complicated for graduates of foreign medical schools.

Between 1980 and 1988, 3,433 physicians and surgeons immigrated to Canada, representing an average of 381 per year. Of these only 30 percent were selected in response to specific Canadian physician manpower requirements. Of the remaining 70 percent who were admitted, largely on compassionate grounds, approximately half have obtained licensure in Canada. In Nova Scotia, the number of registered foreign physicians has exhibited a strong consistent growth rate of 2.8 percent per annum from 1982 to the present.

Most licensing authorities already require that many categories of foreign medical graduates undertake further pre-licensure training (some an additional two years) before being eligible to practice. Since post-graduate training slots are matched quite closely to the number of Canadian graduates, the backlog of foreign physicians seeking training positions- estimated to be about 800 at any given time - is continuing to grow.

The repercussions of the new two-year pre-licensure training requirement for all physicians is unclear. Some foreign graduates could conceivably now require three-years of additional training, bringing still more pressure to bear on Canada's - and Nova Scotia's - limited number of post-graduate training positions.

As yet there is no consistent approach in the way the various provincial licensing authorities are planning to accommodate their own graduates, let alone those of foreign medical schools. There are fears in some jurisdictions that current migration patterns could be significantly affected as Canadian and foreign graduates alike flood to the provinces that have the least stringent licensing requirements. There are also concerns that Canadian graduates may be displaced in competition with the growing numbers of foreign graduates seeking training positions.

It is therefore **RECOMMENDED:**

1. That the Department of Health and Fitness support:

   i) the adoption of the two-year pre-licensure requirement, effective in 1993;
   ii) the recognition two pathways to licensure for general practice and specialty training;
   iii) Family Medicine training as the preferred route to general practice in Nova Scotia.

2. That a Joint Implementation Committee, involving the licensing authorities, faculties of medicine and Departments of Health from each of the provinces within the Atlantic Region, be established to oversee the implementation of the two-year pre-licensure training requirement to ensure intra-Regional compatibility with regards to licensure.

3. That the Joint Implementation Committee, in the interests of public safety and licensing consistency, review the criteria for determining the eligibility of candidates for Temporary Licensure with a view to providing guidelines for regional standardization.

4. That all physicians, regardless of citizenship status, who are graduates of a Canadian medical school or an approved school in the United States, the United Kingdom, Ireland, South Africa, Australia or New Zealand, be required to complete a minimum of two years of acceptable pre-licensure training and successfully pass the LMCC before license to practice medicine in Nova Scotia is granted.

5. That physicians who are graduates of foreign medical schools in countries other than those included above must be a graduate of a medical school that meets the following criteria:
   a)the school must be listed in the World Health Organization Directory of Medical Schools,
   b) the school must have offered a four-year program of medicine for at least ten years.

   In addition the student must have completed an approved clinical clerkship. The student will then be required to complete a pre-internship program (equivalent to a 4th year Clinical Clerkship) before being eligible to apply for a Canadian internship position.

6. That foreign medical graduates whose school of graduation does not fall into either of the categories set out above will not be eligible for pre-internship or pre-licensure training.

7. That the Department of Health and Fitness, in consultation with the medical community, develop a quota system, based on

priority specialty manpower needs, with respect to the total number of Temporary Licenses granted by the Nova Scotia Provincial Medical Board each year.

8. That by 1993 residency training positions should be available only to visa trainees who meet provincial requirements for licensure. Any exemptions that apply should be at the discretion of the Provincial Medical Board and the Nova Scotia Advisory Committee on Physician Manpower, and on the condition that they may not be eligible for licensure in Nova Scotia upon completion of their training.

9. That Clinical Assistants should meet the General Licensure requirements as outlined above before being able to hold the post of Clinical Assistant. Delineation of functions should be made explicit for hospitals that hire Clinical Assistants and selection of appropriate personnel should be based on skill and qualifications.

GOAL 2: To Achieve an Orderly Growth of Physician Human Resources

STRATEGY 4: Dalhousie University School of Medicine

Discussion:

As the only medical school in the Maritime Provinces, Dalhousie's Faculty of Medicine provides a vital service to the Region. The school has a commitment to teach 800 undergraduate and graduate medical students. There are almost 300 FTE faculty in 16 clinical and 5 pre-clinical departments. The 1989/90 budget was almost $31 million.

Since 1978 the Faculty of Medicine has argued that it has been inadequately funded to perform its mission. In 1986 a funding study by Thorne, Stevenson and Kellogg concluded that, given the current mission of the medical school, it should be provided with an additional $4.51 million to fund educational activities. Echoing the conclusions of earlier accreditation reports, it was confirmed that 50 additional faculty were required immediately. As the result of a physician manpower review in conjunction with the TSK report, Dalhousie internship positions were to be reduced from 122 to 102 over three years, and first-year undergraduate enrolment would be reduced from 96 to 84 students, with no corresponding reduction in the school's budget.

Although a significant attempt was made by the Council of Maritime Premiers to reduce the school's funding deficit, subsequent reductions in Dalhousie's base funding grant left the Faculty of Medicine in a continuing deficit position. Three years later 25 additional full-time faculty are allegedly still required. Furthermore an additional $850,000 in Family Medicine residents salaries (plus over $1 million in program expansion costs) will be required each year to accommodate the new two-year pre-licensure training requirement by 1993.

These rising costs must be considered within the context of a growing oversupply of physicians in Canada. Despite recommendations from the Federal-Provincial Advisory Committee on Human Health Resources that up to a 30 percent cut in enrolments in Canadian medical schools may be required, only Nova Scotia and Manitoba have been willing to introduce even modest reductions. Since physicians are free to migrate to the province of their choice, unilateral provincial cutbacks appear to achieve little more than simply reduce access of provincial residents to a medical education in their home province.

As of January 1988, there were 792 visa trainees in Canadian medical post-graduate training, accounting for 10.4 percent of all post-graduate training positions. Estimates indicate that at least 25 percent of visa trainees stay in Canada and obtain landed immigrant status. To a large extent visa training status

has become a stepping stone for foreign medical students to enter the Canadian medical pool on a permanent basis.

Against a backdrop of fiscal constraint and a growing funding deficit at Dalhousie, the trend towards the proliferation of medical sub-specialties being encouraged by the Faculty of Medicine has become of some concern to provincial governments within the Maritime Region. Dalhousie offers over 30 of the 52 specialty training programs recognized by the Royal College of Physicians and Surgeons of Canada. It should be noted that 95 specialties are recognized in the United States and the Royal College predicts that a concomitant growth will occur in Canada.

Pediatrics provides a classic example. Five years ago Canada was well stocked with Pediatricians. In the interim, however, the Royal College has recognized 16 sub-specialties within Pediatrics and has indicated that 50 percent more Pediatricians will now required to meet this new demand. Although the number of government funded residency positions has been held constant, accrediting bodies, in recognition of the sub-specialization within programs, inevitably demand that more resources (i.e., more faculty and more residents to meet both educational requirements and rising hospital service demands) are required to make programs viable. This sub-specialization tends to create its own demand within teaching hospitals and serves to dilute the numbers of core specialists being trained that are required to promote preventive medicine and community based patient care.

Because of the critical mass requirement, the size of some specialty programs tends to be more of a function of the demands for program viability than a reflection of identified physician manpower needs. Furthermore most medical schools endeavour to offer as wide a range of specialty programs as possible. Thus Canada has tended to over-produce some specialty categories simply because every medical school has elected to continue to produce them.

Recently the Royal College has extended the length of the training requirement for General Surgery from four to five years, and currently a half dozen other specialty programs are under similar review. If the length of residency programs is extended and the total number of funded positions remains unchanged, the annual output of specialists from training programs will be reduced. This may put additional pressure on governments to increase or reallocate funded residency positions to ensure that output meets identified medical manpower requirements.

Despite the fact that the number of government funded residency positions have decreased in recent years, the total number of funded posts has not declined. Externally funded positions, primarily supporting graduates of foreign medical schools, continue to play a large role in Dalhousie's residency program.

Initially it was thought that an increase in the number of graduates of foreign medical schools would offer a number of distinct advantages; they would provide services to hospitals, their salaries would be paid by their home country and they would return home upon completion of their training. Some of these advantages are offset by the fact that at least 25 percent of the foreign graduates remain permanently in the country. Futhermore, additional foreign residents affect the size of the residency program, which in turn impacts on program accreditation and viability and on the resources that the program requires. Foreign residents, even if in training only temporarily, create hospital service demands which must then be met on an regular, ongoing basis. Foreign graduates may also be used to both establish and gain recognition for discreet sub-specialty programs that may not be a regional priority in view of current funding constraints.

It is therefore **RECOMMENDED:**

1. **That the appropriate regional support be provided to ensure the Faculty of Medicine remain a strong and viable academic institution.**

2. **That the mission of the Dalhousie Medical School be re-assessed in light of a regional physician human resource management strategy to ensure that it remains sensitive to Maritime manpower planning priorities.**

3. **That Federal/Provincial agreement be sought on the issue of total enrolment in Canadian Medical Schools being reduced by at least 25 percent, with enrolment reductions shared by all schools; the appropriate undergraduate enrolment cutback for Dalhousie Medical School's share of the national reduction be determined in full consideration of regional needs and reductions already implemented in recent years.**

4. **That all proposals for new or expanded programs be vetted through the Maritime Provinces Higher Education Commission before approvals are sought by the University Senate or the Royal College of Physicians and Surgeons. And that all new proposals for expanded programs be funded from the existing global budget allocation.**

5. **That a quota on undergraduate enrolment, pre-internship positions, and pre-licensure positions be determined by the Nova Scotia Advisory Committee on Physician Manpower for approval by the Minister of Health.**

6. **That the Family Medicine/Specialist ratio of post-graduate training slots should be maintained at 40/60. As such, the number of Family Medicine posts per year should be established at 32 commencing in 1991-92. This is a preliminary recommendation to be reviewed in light of current and future needs by the Regional Advisory Group on**

Health Sciences Education.

7. That the Family Medicine program provide rural practice rotations for residents as an integral part of the Family Medicine Program. The purpose of this is to familiarize the resident with the rural practice setting with the hopes of enhancing rural recruitment and retention.

8. That the selection criteria for foreign medical graduates applying for a Canadian internship spot be designed to ensure that Canadian graduates are not at a disadvantage.

9. That the total number of residents funded by Nova Scotia be frozen at 166 and that ten percent of these positions be reserved for residents who agree to practice in a designated area, determined by the Minister of Health and Fitness, for a return in service of two years.

10. That within the global funding of residency posts, there be a number of dedicated positions for those specialties deemed in short supply by the Minister of Health and Fitness.

11. That the Department of Health and Fitness promote, through Federal/Provincial negotiations with the Royal College of Physicians and Surgeons, the Association of Canadian Medical Colleges and the Canadian Medical Association, development of national centres of excellence for sub-specialty training programs.

12. That there be a 5% ceiling on the total number of externally funded visa trainees permitted (i.e. 5% of the total number of residents) during any one year in the specialty training programs at Dalhousie University.

13. That specialized medical training programs be concentrated within a more restricted number of hospitals to prevent duplication of services, and to provide a more cost effective delivery of medical services.

14. That the Nova Scotia Advisory Committee on Physician Manpower, in consultation with the Dalhousie University Faculty of Medicine, determine the appropriate number of pre-internship positions, Post-Graduate level one and Post-Graduate level two pre-licensure positions available to Canadian Graduates of Foreign Medical Schools and/or Landed Immigrants. In addition, determine objective selection criteria for entrance into the Pre-Internship Positions.

GOAL 2: To Achieve an Orderly Growth of Physician Human Resources

STRATEGY 5: Immigration Policies

Discussion:

Canada Employment and Immigration (CEIC) has the basic aim of developing policies to promote immigration flow that is responsive to Canada's social, cultural, demographic and economic needs while continuing to fulfill Canada's international commitments and humanitarian traditions.

Physician immigrants coming to Canada are admitted under either the "selected" or "unselected" categories. About 70 percent of immigrant physicians fall under the unselected category which includes refugees and assisted relatives. These physicians are rated on a 100 point scale, 70 points which are needed for admission to Canada. The market demand for a prospective immigrant's occupation is ranked on a 10 point scale. The remaining 30 percent of immigrant physicians have their applications for landed immigrant status reviewed by provincial physician manpower committees to ensure that their services are required.

Adding more immigrant physicians to a market that is already saturated however, can have negative economic impacts for Canadians and landed immigrants alike. Hundreds of graduates of foreign medical schools are admitted to Canada each year and forced to compete for a handful of internship positions. With tightening licensure requirements, the backlog of physician immigrants seeking post-graduate training positions continues to grow. As such, CEIC's policies may need refinement to ensure that they are consistent with their stated goals and sensitive to the needs of the Canadian market.

Futhermore, in February 1988, CEIC introduced a new policy designed to help foster a positive environment for post-secondary foreign students in Canada. Foreign students may now work in education-related jobs for up to twelve months after graduation. In addition spouses of full-time students in Canadian educational institutions are granted permission to "accept work without the needed job validation or being subject to the availability of Canadians."

The impact of this policy is significant with regards to physicians. All graduates of foreign medical schools admitted to post-graduate training (about 800 in 1988) are eligible for one year of work at the location of their choosing. Futhermore if any of these physicians have spouses enrolled in an educational program, the foreign physicians could continue to practice as long as their spouses remain students, further adding to our physician surplus and our physician geographic maldistribution problem.

It is therefore **RECOMMENDED:**

1. That in keeping with the National initiatives to stabilize manpower supply numbers while trying to reduce the hardship to Canadian graduates, recruitment of foreign physicians (selected immigrant physicians) be cut significantly for general practitioners in particular, and any other specialty areas that the Nova Scotia Advisory Committee on Health Human Resources deems as being in a situation of normal or oversupply relative to the rest of Canada.

2. That Employment and Immigration Canada (CEIC) in consultation with the Federal/Provincial Advisory Committee on Health Human Resources, review CEIC's current policy with regard to the selection of unselected immigrant physicians to determine whether they are appropriately responsive to the needs of the Canadian labour market.

GOAL 3: To Ensure An Equitable Geographic Distribution of Physicians and to Ensure An Appropriate Mix of Physician Services

STRATEGY 1: Incentive Plans

Discussion: (See Chapter 2 Nova Scotia Physician Supply Data)

It is **RECOMMENDED:**

1. The Health Services and Insurance Commission (H.S.I.C.) should work closely with the Department of Health and Fitness, and with regional and local authorities to achieve a supply and geographic distribution of physicians services commensurate with the health services needs of Nova Scotians through a formal, coordinated regional manpower planning process.

2. That existing financial incentive programs to induce physicians to establish practices in "underserviced areas" be phased out, through attrition.

3. That innovative means of attracting physicians to underserviced areas be explored, including salaried positions, recruitment fairs, travelling family practitioner and specialist programs and improved methods of advertising rural areas to the physician population.

GOAL 3: To Ensure An Equitable Geographic Distribution of Physicians and to Ensure An Appropriate Mix of Physician Services

STRATEGY 2: Medical Staffing of Hospitals

It is **RECOMMENDED:**

1. That hospital Master Plans, which include assessments of medical staffing requirements, be undertaken periodically by Nova Scotia's hospitals.

2. That the Master Plans prepared by all hospitals be reviewed, reconciled and approved by the Department of Health and Fitness so as to allocate available funds among hospitals in a manner consistent with their approved roles. This should be done in consideration of Regional Master Plans that outline service delivery roles for the nine hospital regions in the province. Included in the Master Plans will be a detailed physician manpower plan.

3. That hospital medical staff, administrators and board members, before acting on an application for hospital privileges from a new physician, should take into account, in addition to the professional qualifications of the applicant, first, whether the service which the new physician wishes to provide falls within the role approved for the hospital, and second, that in assessing medical staffing requirements hospitals undertake detailed physician impact analysis.

GOAL 3: To Ensure an Equitable Geographic Distribution of Physicians and to Ensure an Appropriate Mix of Physician Services

STRATEGY 3: Specialty Services

It is **RECOMMENDED:**

1. Given the complexities of specialist services and the growing legal consciousness of the public, it is recommended that the use of general practitioners as specialists should be strongly discouraged.

GOAL 4: To Ensure the Appropriate Administrative and Planning Structures and Mechanisms Are in Place to Implement the Recommendations Outlined in this Report

STRATEGY 1: Health Human Resource Management Information System

It is RECOMMENDED:

1. That a health human resource management information system, including physicians, be developed and maintained by the Department of Health and Fitness. The database would include demographic, educational, employment, utilization, supply and distribution, and demand and vacancy information from all health professions in Nova Scotia.

GOAL 4: To Ensure the Appropriate Administrative and Planning Structures and Mechanisms Are in PLace to Implement the Recommendations Outlined in this Report

STRATEGY 2: Federal/Provincial/Regional Human Resources Committee Structures

Discussion:

Since 1973 the Nova Scotia Advisory Committee on Physician Manpower has been the principal advisory committee to the Nova Scotia Minister of Health and Fitness on all matters relating to physician manpower planning. The primary purpose of the Committee is to examine and report on physician resources in terms of supply, production, utilization and demand, with the overall aim of making appropriate recommendations to Government to augment the effectiveness of current provincial physician manpower policies.

While the mandate of the Advisory Committee is indeed broad, the majority of the Committee's time by far is taken up in acting in an advisory capacity to Canada Employment and Immigration. All applications from graduates of foreign medical schools who are seeking visas to undertake further post-graduate training or to obtain temporary employment or landed immigrant status are reviewed by the Advisory Committee with respect to provincial physician manpower requirements.

With respect to physician manpower planning within the Maritime Provinces it is the mandate of the Regional Advisory Group on Health Sciences Education to review all proposals affecting health sciences education in the region, and to review human resource needs for health professions in each province in order to determine the appropriate numbers of funded training positions.

It is therefore **RECOMMENDED:**

1. **That in addition to assessing the regional requirements, the Regional Advisory Group on Health Sciences Education should be integrally involved in the planning and evaluation of the the academic component of the Dalhousie Medical School i.e. costs, program viability, accreditation and program specific issues.**

2. **That in recognition of the need to rationalize resources and establish program funding priorities, the role and membership of the Regional Advisory Group on Health Sciences Education be modified to enable a more appropriate assessment of university long term academic plans to ensure they are adequately assessed in light of the educational and health services requirements of the region.**

3. **That the Nova Scotia Advisory Committee on Health Human**

Resources be the central manpower planning committee for all health disciplines, including physicians, in Nova Scotia.

4. That in cooperation with the Institutions Division of the Department of Health and Fitness, and the Policy and Strategic Planning Unit of the Department of Health and Fitness, regional physician manpower plans be developed based on the designated hospital regions in the Province. This would include supply and projected needs based on current health needs and available resources for three year periods. These regional manpower plans would be used to plan the delivery of physician services in Nova Scotia to ensure an equitable distribution and to incorporate the future growth of regional health care services. Determining resource allocation should be based on regional manpower plans, hospital Master Plans, impact analysis, available resources and utilization data. These plans should be consistent with the Regional Master Plans outlining service delivery objectives and consistent with the provincial growth rate targets.

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Volume

3

THE REPORT

OF THE NOVA SCOTIA ROYAL COMMISSION ON

HEALTH CARE

Towards a New Strategy

Research Studies
Volume III

December 1989

The Complete Report of
The Nova Scotia Royal Commission on Health Care
consists of the following:

- **Summary of the Report**
- **Report of The Nova Scotia Royal Commission on Health Care: Towards a New Strategy**
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Introduction

The research studies listed below were prepared for the Nova Scotia Royal Commission on Health Care.

Although written under the auspices of the Royal Commission, the views expressed are those of the authors and do not imply endorsement by the Commissioners.

Volume One

Institute for Health Care Facilities of the Future	**Inter-Provincial Comparison of Health Care Expenditures**
	Health Status Indicators and Demographic Trends for Nova Scotia
	Fiscal Federalism from the Perspective of Nova Scotia

Volume Two

Canmac Economics Ltd.	**Economic Forecast**
Gardner Pinfold Consulting Economists Limited	**The Economic Impact of Public Expenditures on Health Care in Nova Scotia**
Case Mix Research	**Indirect Costs of Teaching in Nova Scotia Hospitals**
Nova Scotia Working Party on Physician Manpower Planning	**Physicians in Nova Scotia: A Human Resource Management Strategy**

Volume Three

Stevenson Kellogg Ernst & Whinney	**Review of Relationship Between The Nova Scotia Health Services and Insurance Commission and Maritime Medical Care Inc.**
	Practice Plans at Dalhousie University Faculty of Medicine
Doane Raymond	**Comprehensive Health Care Planning Guidelines**
MacLean Hospitality Consultants Ltd.	**Report on Cost and Quality of Hospital Food Production in Nova Scotia**

Stevenson Kellogg Ernst & Whinney
Management Consultants

Project Report

REVIEW OF RELATIONSHIP BETWEEN THE NOVA SCOTIA HEALTH SERVICES AND INSURANCE COMMISSION AND MARITIME MEDICAL CARE INC.

Prepared for

The Nova Scotia Royal Commission
on Health Care
Halifax, Nova Scotia

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I

INTRODUCTION

Maritime Medical Care Inc. (MMC) was founded in 1948 as a non-profit organization to operate in the field of prepaid health services programs.

In July 1967 as a part of the Province of Nova Scotia's plan to introduce a provincial medical care insurance plan, MMC entered into an agreement with the province's Minister of Health to participate in the design of the plan and to administer the plan, known as the MSI plan. The most recent version of this agreement is dated July 19, 1984.

The Health Services and Insurance Commission (HSIC) was established by Chapter 8 of the Statutes of Nova Scotia, the Health Services and Insurance Act which was passed in April 1973. HSIC's role is to administer the Act.

As part of its work, the Nova Scotia Royal Commission on Health Care's (Royal Commission) work is examining the current "arrangement" between HSIC and MMC. Stevenson Kellogg Ernst & Whinney have been engaged to conduct this review. In general the consultants were asked if the current arrangement should be continued, modified in some way or be discontinued.

In particular, we were asked to consider six basic questions.

- Is the current arrangement effective and efficient?
- Does the current arrangement limit HSIC's direct access to and its ability to do timely research on the MSI data?
- Is the separation between policy and administration of MSI warranted?
- How do the administration costs compare with other provinces?
- Is the expenditure on EDP appropriate?

The original project work plan was to have a meeting of the major players in this arrangement, at which we would obtain an agreement on the appropriate measures of effectiveness and efficiency. This did not prove to be possible. Previous time commitments prevented scheduling the meeting at a time appropriate to the other study activities. As a result we have had to modify our approach, define measures that seem appropriate to us and then comment on how the arrangement measures up.

This report presents the results of this review.

II

HIGHLIGHTS

MMC was founded by the Nova Scotia Medical Society in 1948 as a non-profit organization to operate in the field of prepaid health services programs. In 1967 MMC entered into an agreement with the Province of Nova Scotia to participate in the design of and subsequently to administer the provincial medical care insurance plan.

Over the years the Province has placed great reliance on MMC, not only to handle the administration of established programs, but also to help define policies and procedures for new programs as they are introduced. Our review of documentation suggests that MMC prepared research, policy and procedure documents for review and approval by the Minister of Health and his senior officials within the department and HSIC. The number and variety of papers and reports generated suggest the MMC research department has been used heavily in analysis related to current and potential insured programs. Some of the research has been initiated at the request of HSIC or the Minister. But a good proportion has been initiated by MMC management. This reflects MMC's relatively broad view of what is entailed in program administration under its agreement with the Minister. On many occasions MMC have been policy advisors not simply administrators.

In contrast to the above administrative role contracted to MMC, HSIC handles the policy components. Over the years its primary role has been negotiating tariffs with the providers. In this context and in the role of a medium of appeal, the commissioners have been a buffer between the government and the various providers. In fact the current Commission Chairman notes that the Commission is "a political animal." Committees of the HSIC have been helpful in providing a type of peer input on some interpretation of policies.

Over the years, the activities of HSIC and MMC as directed by the Executive Director of HSIC and the General Manager, have been in somewhat of a balance or "equilibrium." That is not to say that there have not been disagreements. The fact that MMC's contract is with the Minister and not explicitly administered by HSIC has occasionally been a source of concern. But overall each organization understood and accepted its role and the other's and carried out its responsibilities accordingly.

Over the last few years some changes in the health care environment have resulted in a questioning of this "equilibrium". Examples of these changes are:

- Universally, an increasingly greater attention is being given to the challenge of constraining escalating health care costs including insured services. Using some measures, Nova Scotia has not done as well with insured services as other provinces.

- A new Executive Director of HSIC has been appointed. This new Executive Director brings new ideas on how HSIC should carry out its responsibilities. He has a strong belief the arrangement should be changed, that administrative costs can be better controlled and reduced, and that, perhaps, MMC is being more aggressive at auditing pharmacy claims than physician claims because of the Medical Society's relationship with MMC.

- With the expiry of its lease on space MMC decided to build and, subsequently occupy, its own office building in the Burnside area of Dartmouth.

- HSIC's Executive Director's efforts to get a better understanding of the workings and economics of the insured services programs have been constrained because of the lack of resources at HSIC and the historical relationship between MMC and HSIC wherein MMC interpreted the scope of administration in a relatively broad context.

HSIC frustrations and the other changes have led to the ultimate suggestion that the whole insured health care program would be more efficient and effective, and money saved, if its administration were rolled into the government proper, either directly under HSIC or the Department of Health.

Moving this function from the private sector to the public sector goes against a recent trend in other aspects of our economy. The federal government, in particular, has been a proponent of privatization. Some of the alternative forms of health care program delivery being considered in other provinces involve the private sector. But admittedly in the insured service area, the MMC arrangement is an exception compared with other provinces.

The Federal Health Care Act requires that programs that are cost shared by the Government of Canada be administered by a not-for-profit organization. The fact that the current arrangement with MMC is a "no-profit no-loss" arrangement seems to be a logical extension of this no-profit requirement. Any organization that is not allowed the opportunity of retaining a "profit" for good performance would expect to have the risk of loss eliminated. Another potential attraction for another private sector organization taking a contract to administer the program, is the economies of scale available from having the public sector customer contribute to the cost of a more sophisticated information system operated by that company. But the Nova Scotia arrangement eliminates this potential attraction by insisting the provincial data centre and associated Systems and Computer Services facilities be used.

The age of the MSI computer-based information system has an impact on the efficiency and effectiveness of the administration and research functions.

Historically and universally, insurance companies have made extensive use of computer-based information systems to maintain and lower cost ratios and improve competitiveness. The use of modern computer technology has allowed some companies to

stay in business and grow while others have remained stagnant or gone out of business. Some insurance company executives will note that investment in information systems as an important corporate asset is a long-term competitive decision that is often difficult to support with traditional short-term benefit cost analysis.

As we noted above, the MMC agreement requires the use of the provincial data centre and, more significantly, puts the funding of information systems development in the same "pot" as systems development in all other government departments. Tying information systems development to the annual review of priorities and allocation of scarce resources between various government departments, as is the case in Nova Scotia, is inconsistent with traditional practice within the insurance industry.

The efficiency and effectiveness of the administration will continue to be less than optimal as long as the current information systems environment remains. A significant investment in the system is required. More importantly a reshaping of the system, coordinating the design with other components of the health care information system is essential if the Department of Health is to effectively manage the health care system in minutes.

Our review of the effectiveness and efficiency of MMC's administration gives a mixed report card. Components such as registration are efficient and effective largely because of a modern computer subsystem. Data entry, edit and claims assessment could be improved substantially.

Comparison of administrative costs with other provinces is extremely difficult. Programs differ; each province has taken a different approach to the use of computing technology, some provinces place greater responsibility on providers to prepare claims; in most cases, costs are not well separated on a program basis.

Saskatchewan's administrative costs for Medicare appear to be less than Nova Scotia (2.2% of the total program costs versus 2.7%.) New Brunswick's cost of administration of Pharmacare (performed under contract by Blue Cross) appears to be less than Nova Scotia, (1.3% of program costs versus 3.4%), although we know the services provided are not the same.

The greatest benefit from comparing Nova Scotia with other provinces is that it allows one to pick out specific components where the other provinces are more effective and efficient than Nova Scotia. This highlights opportunities for Nova Scotia to improve components of administration. It also suggests areas where approaches to the policy component might be enhanced.

MMC was originally established by the Medical Society. Reflecting on this origin, the question has been asked whether there is a conflict of interest in having this organization administer the Medicare program. We have found no evidence of conflict of interest and no evidence that the Board of MMC, in general, or Medical Society representatives, in particular, have attempted to influence the administration of MSI. At present the Chairman of the Board of MMC must be a physician and seven of the thirteen

Board members must be physicians. Changing these clauses in the by-laws might remove some potential bias. But since the Deputy Minister of Health and the Executive Director of HSIC are invited to all MMC Board meetings and provided with all meeting background papers we suggest such a by-law change is essentially cosmetic.

In general terms the arrangement calls for HSIC to handle policy matters and MMC to handle administration. Overall the activities are split between MMC and HSIC appropriately. Most of what MMC currently does is program administration. Most of HSIC activities are "policy" related.

In the broader context of managing the cost of insured services more can be done. Other provinces such as Manitoba provide a useful model of extensive practice profile analysis, use of Peer Review Committees, improved communication with both beneficiaries and providers with an aim of longer term behavior modification. These initiatives should not be considered audits. Rather they are better placed in a policy context outside of MMC. They require an improved information system, a research function with a broader mandate than simply supporting the administration function and the establishment of an effective peer review process.

The research function to support this activity should be outside of MMC. Combining it with the existing research function within the Department of Health would encourage research tieing together insured services, institutions, home care, etc. HSIC may still require an analyst to support tariff negotiation activities. MMC may also need an analyst to support the audit function, and the production of required statistics. But much of the existing research function (which has received complements throughout our review) would be used more productively within this expanded Department of Health based function.

What about the current arrangement? Should it be changed?

In our view, changing the basic role of MMC either by going to competitive tender of the administration or rolling the administration into the HSIC or Department of Health organization has marginal benefit and should not be a priority in the short to medium term.

While the no profit-no loss element of the arrangement does little to promote improved efficiency and effectiveness, that is a function of the federal government's participation in the funding and probably cannot be changed even though a change would be desirable.

Many aspects of the information system can and should be upgraded. This will require a fairly significant investment and increase in the Information Systems component of the operating budget. It should have some offsetting impact on personnel costs. More importantly it should provide vastly improved information and tools for HSIC and the Department of Health to support a broader, policy-oriented activity aimed at better managing program costs through practice profile analysis and behavior modification. In this context we recommend the province of Manitoba as a model of the effective use of information systems as a tool.

It would be desirable if some way could be found to remove the factors that have inhibited systems development in the past. Moving the systems development and operation from the Systems & Computer Services branch of the Department of Government Services to the Department of Health and giving the Department of Health the budget needed to aggressively re-develop the system would be a start.

The increased emphasis on practice profile analysis in the policy context should not be treated as an expansion of the administrative activity. Rather it is a health care policy function falling in the domain of HSIC.

HSIC has recently added an internal auditor to its staff and have initiated a review of MMC. While it will be useful for HSIC to improve its understanding of how MMC carries out its administrative role, HSIC can have a much greater impact on the cost of insured programs by focussing on the 97.3% of the costs in the program area rather than the 2.7% administration. The existing Research & Statistics function at MMC can be most helpful in supporting this HSIC activity. We suggest that a major part of it should be combined with the Department of Health's research function.

We view as cosmetic adjustments in MMC's by-laws the reducing of the required number of physicians on the Board of Directors and designating that the Chairman of the Board must be a physician. However, if it helps remove the apparent excessive influence of the Medical Society on the administration, changes should be pursued with MMC.

III

CURRENT UNDERSTANDING OF ARRANGEMENT

A. THE ROLE OF THE HEALTH SERVICES AND INSURANCE COMMISSION

The Health Services and Insurance Commission was established by Chapter 8 of the Statutes of Nova Scotia, the Health Services and Insurance Act. The Commission consists of not fewer than nine nor more than twelve members, responsible to the Minister of Health. Membership includes two physicians nominated by the Medical Society of Nova Scotia, and two members nominated by the Association of Health Organizations.

Each Commissioner holds office for such term as is prescribed by his appointment. Commissioners are eligible for re-appointment but may not hold office for a term or terms exceeding six consecutive years. Commissioners are appointed by order-in-council.

Twelve regular meetings are held annually and special meetings are held when necessary. Committees of the Commission meet as required through the year.

The Commission has responsibility for:

- Negotiating tariffs.
- Establishing the tariff or tariffs of fees or other system of payment for insured services and authorizing payments.
- Interpreting tariffs and determining their application to the assessment of claims.
- Conducting surveys and research.
- Recommending to the Minister changes in insured programs.
- Providing policy direction to Maritime Medical Care, Inc.

1. Programs offered

The following programs are offered by the Commission:

a) Medical

Fee-For-Service -- All medically required services in patients' homes, doctors' offices, or hospitals.

Dental/Surgical -- Select dental services provided in hospital by dental surgeons.

Salaried Physicians -- Psychiatrists working in hospitals, mental health clinics and other special arrangements.

b) Optometry

Vision analyses provided by optometrists.

c) Children's Dental

Comprehensive dental services for children up to 16 years of age.

d) Pharmacare

Comprehensive prescription drug coverage for residents 65 years of age and older.

e) Special Dental Plans

Cleft Palate -- Comprehensive dental plan for registered cleft palate patients up to the age of 23.

Mentally Retarded -- Insured dental services required to be done in hospital for the severely mentally retarded.

School for the Blind -- Comprehensive dental coverage for residents of the School for the Blind.

f) Prosthetic Services

Insured services for normal arm and leg prostheses for limb amputees. Ocular prostheses for the legally blind up to age 18 and 65 years of age and older, and maxillofacial surgery prosthodontics (inter-oral prostheses).

g) Special Drug Programs

Cystic Fibrosis -- Insured drugs and equipment for sufferers of Cystic Fibrosis.

Diabetes Insipidus -- Insured drugs for sufferers of diabetes insipidus.

Cancer Drugs -- Insured drugs for the treatment of cancer.

Growth Hormone Drugs -- Insured growth hormone drugs for patients with a certified growth hormone deficiency.

2. HSIC concerns

The following discusses the concerns related to these roles and responsibilities as they relate to the relationship of MMC and HSIC.

a) Conflict of interest

HSIC personnel raised this as a major issue. Questions include:

- Can MMC, owned by the Medical Society effectively conduct the audit function on its own members? What directions are given to staff concerning audit of various programs. They believe that senior management may give directions to be more rigorous in auditing other programs, for example, the pharmacare program, than the medical providers.

- Although a non-profit corporation, MMC operates a private, for profit company -- Benefit Services Corp. This company provides private insurance not unlike several other companies (e.g. Blue Cross). Questions raised include:

  - because MMC is involved closely in administration and policy setting regarding the government plan, they theoretically have the inside track on information that could give them a competitive edge. (No examples of this occurring were mentioned nor was HSIC aware of any complaints from competitive companies about this.)

  - because Benefits Services Corporation owns the MMC building and then leases it to MMC, and MMC occupies, what HSIC considers to be, both larger and more luxurious space than civil service standards and because there is not real control by HSIC over the overhead costs of MMC, there is concern about this arrangement, and rent has increased over the previous location. Should the province be gaining equity in the MMC building?

  - because HSIC believes the accounting systems do not provide good information on true program costs and because programs operated by Benefit Services Corporation utilize the same staff and facilities as

MMC, HSIC questions whether the province may be subsidizing the private, for profit plans. Again, they have no concrete evidence -- just questions.

- one example of concern over conflict of interest in general was cited. There is a federal/provincial committee on issues related to insured services. The other provinces have indicated MMC should not attend for some sessions because of conflict of interest. However, HSIC's executive director frequently does not know operational details of his counterparts in other provinces where there is no MMC. The result is that where every other province sends one person, Nova Scotia must send two, but the MMC representative may have to leave during some discussions. This arrangement is considered costly and ineffective.

- does the ownership of MMC violate the Canada Health Act?

b) Separation of research activities from policy making -- inhibits program planning

HSIC sees this as a significant impediment to efficient and effective functioning of the system. In particular the location of all research resources within MMC is considered to limit research effectiveness. Although the Commission admits it receives all information it requests in a timely fashion, the lack of a cohesive team approach, integrated with the research endeavors of the Department of Health prevents good program-wide policy development. With changes in health services planning moving towards a more integrated approach -- hospitals, medical, community services, etc. -- the need for a consolidated approach is increasing. HSIC believes they could draw on resources of the Department of Health and would like to see the MSI research component integrated as well.

The lack of control over policy implementation causes the Commission concern. An example cited was in the audit of pharmaceutical services. The HSIC policy requires an annual audit. However, MMC is responsible for the implementation process. HSIC started receiving complaints that the audit process included visits to patients and examination of drug bottles. They believe this to be an inappropriate audit method, but apparently the current system did not allow it to be "nipped in the bud."

Furthermore, the HSIC believes they cannot control administrative priorities. They suspect that the ownership structure may lead to setting priorities that are not necessarily in the public interest. They do not know -- but think that perhaps more effort is put into auditing pharmacies and dentists than auditing physicians.

The third problem identified was the uncertainty of who should take the lead in systems development -- HSIC or MMC. HSIC wishes to implement a unique identifier and smart card system. No one has the clearly defined responsibility to do this and of course another party -- SCS, is also involved, making it even more complicated.

c) Efficiency

HSIC approves annual estimates for MMC and pays all "reasonable costs." This includes the administration component as well as the service delivery component. HSIC sees that the current system does not promote efficiency and in fact may reward inefficiency. Examples cited include:

- Current building arrangements in which Benefits Services Corporation leases space to MMC. The size and quality of the space is well above government standards (this overlaps concern regarding conflict of interest.)

- Reductions in staff numbers have not kept pace with these in other provinces (of course this is largely technology dependent.)

- Salary costs are believed to be at par or higher at MMC than for provincial employees. Benefits are apparently substantially better at MMC.

- MMC has a subsidized employee cafeteria.

- MMC operates satellite information offices in the Garrison Building in Halifax, in New Glasgow and Sydney. HSIC wonders why these are needed when there is a toll free province-wide number.

- The current system also results in duplication. Both HSIC and MMC have paid management structures and board operations. Savings could be achieved by bringing MMC under HSIC. Areas that could be consolidated include:

  - board/committees
  - senior management
  - physical facilities (reduce total space by several thousand square feet)
  - integrate senior management (one executive director/general manager instead of two)
  - eliminate MMC's personnel department (use Department of Health)
  - eliminate purchasing, accounting, forms inventory (use Department of Health)

- systems development could be integrated with Department of Health
- D. Dinham believes these moves would save at least $600,000 per year

d) Effectiveness of audit process

MMC has responsibility for both claims assessment and audit processes. HSIC believes the processes to be ineffective in several areas and has as a result engaged a medical advisor and an internal auditor. Program audits for abuse, fraud, etc., were handled by MMC but this changed and a committee doing this now reports to HSIC. HSIC believes medical auditing has been very weak but pharmacies have been over audited. Physician payments are based on an honour system with only computer checks and after-the-fact monitoring. HSIC believes a system should be in place to prevent payments being given to physicians inappropriately in the first place.

In general, HSIC does not know what audit tools are being used by MMC and cannot, therefore, evaluate them.

e) Tariff negotiations

The negotiation process is generally considered to work quite well. There is a final offer arbitration system in place which facilitates compromise. The MMC medical consultant acts as an advisor but is not involved in direct negotiations because of a perceived conflict of interest. The current system does allow a measure of separation between tariff negotiations and the actual claims processing and this separation is considered an essential element of good practice.

This year, for the first time, HSIC is attempting to introduce an element of utilization control into the tariff negotiation process. They do not know yet whether they will be successful.

f) HSIC is mandated to supervise the activities of MMC.

HSIC has had very limited staff to fulfill this role and as a result has exercised only a very limited supervisory role through fiscal arrangements. With expansion of resources to include an internal auditor and medical consultant this supervisory role is anticipated to increase. At present, however, there is daily communication between HSIC and MMC supervisors and MMC receives copies of all HSIC minutes which give them their policy direction.

HSIC has difficulty in assessing whether MMC is doing an efficient and effective job. The MMC budget does not provide a good breakdown of costs by program area and it is difficult to separate staff for the various programs. HSIC believes processing of pharmacare claims to be relatively easy and therefore should be done cheaply. They are not confident in the cost breakdowns between the various programs of

MMC and the Benefit Services Corporation. The internal auditor of HSIC will be looking at these questions.

g) Policy development

The separation of policy and administration was discussed earlier. Within HSIC both policy development and the appeal and review process occurs through the committee structure. HSIC is currently conducting an internal review of the efficiency and effectiveness of these committees and will be addressing this issue in a retreat scheduled for July. Some committees are more effective than others. Although committee members are paid, their fees are small relative to private sector earnings. MMC has criticized them for too slow decision making. With the change in HSIC executive director it seems that more cases are referred to committees. This has led to some perceived bottlenecks in the system.

h) Contracting out

HSIC sees a need to resolve a general philosophical question of contracting out public programs to the private sector, especially in cases where the complexity of program administration makes it difficult, may be even impossible, to invite competitive bidding. Since involvement of MMC in MSI is defined in an act it will be difficult to change, but the question is clearly political.

i) Use of provincial computing facilities

HSIC is very concerned, that although it wishes to see the computer system/claims processing modernized, that the claims file not be turned over to MMC. HSIC believes it could be "held to ransom" if this occurred.

j) HSIC/Department of Health relationship

HSIC shares a number of services with the Department of Health and sees this as very beneficial. Further, it sees an even closer relationship in future in the area of research and planning. HSIC utilizes the administrative support services of the Department of Health (e.g. personnel, finance, some research, supplies inventory) and considers this a good arrangement. Department of Health personnel sit on some commission committees and both new HSIC positions are shared with the Department of Health.

k) HSIC as a buffer

One of the strengths HSIC sees in its operation is that it serves as a buffer in the political process. Its consultative, non-confrontational style is very much in tune with the Nova Scotia style of doing things and hence is considered appropriate.

l) Medical Society "Domination" of MMC Board

HSIC is concerned about the board of MMC. Although some lay membership is included, the board is controlled by the Medical Society and the chairman must be a physician. The board is seen as self-perpetuating. HSIC believes it should be more open and more accountable.

m) Inter-provincial comparisons

Any comparisons of efficiency rates between provinces must recognize the following:

- Pharmacare claims processing simple, high volume, not done by other provincial plans.
- Nova Scotia medical fee schedule is 111% of the Canadian average (Saskatchewan is 104%).

B. THE ROLE OF MARITIME MEDICAL CARE

1. The Health Services & Insurance Act & 1984 Agreement

Two documents are useful as background to understanding the role of MMC These are the Health Services and Insurance Act and the 1984 Agreement between The Minister of Health and MMC

The Health Services and Insurance Act, that was passed in 1973 initiating the provincial medical insurance plan, states that "the MSI plan shall be administered and operated on a non-profit basis by an authority consisting of the Commission (HSIC) and the Corporation (MMC).

The signed 1984 Agreement between The Minister of Health and MMC sets out six broad functions that MMC is to perform. These are:

- Determine eligibility of receivers and providers of services.
- Receive and assess claims according to policies prescribed by HSIC.
- Make payments of approved claims with such frequency as HSIC directs.
- Hear appeals arising from decisions of MMC's own officers or committees in the administration of the Plan.

- Develop systems & procedures to monitor utilization and unnecessary utilization of insured health services.

- Compile and analyze statistics from Plan data and prepare and submit reports as required by the Minister or HSIC.

Supplementary to these main functional clauses in the Agreement are a number of other tasks like "...plan and conduct information and education programmes necessary to ensure that all persons and providers are informed of their entitlements and responsibilities ...", in the event of an overpayment "...take all reasonable action to recover the overpayment..." and "...undertake studies of the effectiveness of such procedures and devise methods for their improvement...."

2. Interpretation of the Arrangement

Some of the base functions referenced in the Agreement are easily understood even by those not directly involved in the administration of the plan. However, some gray areas exist with some of the functions. We discuss each of the functions below. In the discussion we make repetitive reference to MMC. At many stages in the processing and other work related to this agreement, the staff and systems are completely separate from those processing claims related to MMC's private insurance plans.

a) Determine eligibility

Eligibility checking requires two files or data bases, a provider data base and a resident data base.

The data bases currently reside on the Government Computer Centre computer and are updated regularly by MMC staff.

At present, the only use of these data bases is for the insured services administered by MMC, hence updating the data base is a logical component of the eligibility checking process.

If systems and services change so that these data are used for other than the insured services administered by MMC, then one might consider making someone else responsible for maintaining these data bases.

b) Receive and assess claims

This might be considered the core of MMC's work. MMC does receive all claims for all programs. About 30% of the claims are now received on diskettes or by direct communication link. The remainder are on claim cards that must be keyed by MMC staff.

About 85% of the claims are assessed by a computer system defined by MMC and resident at the government computer centre. Errors from this process plus those claims that cannot be assessed correctly on the computer are done by MMC staff.

c) Make payments on approved claims

MMC issues the cheques on approved claims bi-weekly and informs HSIC and the Department of Health of the total value. Payments are made from a Department of Health bank account. A significant portion of the payments are now on direct deposit into the providers' bank accounts, pharmacists 50%, physicians 60% and dentists 22%. The Department of Finance transfers funds into the account based on their forecast of daily requirements.

d) Hear appeals arising from decisions of its officers

MMC has medical, dental and pharmacist advisers to review claims requiring "professional" attention, discuss disputed claims with the providers and to participate in appropriate appeal or hearing processes.

HSIC also receive appeals directly from providers and patients.

e) Develop systems & procedures to monitor utilization

For the most part the systems and procedures have been developed by MMC, communicated to HSIC for information. In some cases they have adjusted audit procedures upon instructions from HSIC.

Each week MMC sends out verification letters to 1% of the patients for which claims have been processed.

In addition, they do an audit of each pharmacy annually.

Systems are in place to sort and analyze the claims data to assess utilization pattern and help identify patterns that appear to be outside the norm or in need of review.

This is probably the area where there is the most potential for debate on the division of responsibilities. MMC view its responsibility for utilization review to be relatively all encompassing. For example, they see they are primarily responsible for identifying techniques used, analyzing the data, where appropriate discussing the situation with providers and/or patients, bringing it to the appropriate review committee of HSIC for its review. MMC believes that because HSIC committees are all essentially volunteers whose time is limited, only "significant" cases should be referred to them. The Commission itself is primarily there to deal with cases of fraud or potential fraud in this context.

f) Compile and analyze statistics

MMC has staff that compiles statistics for the Annual Reports. In addition, MMC staff are frequently called upon to prepare special reports on a variety of issues related to the programs being administered by MMC e.g. Pharmacare Product Selection, Psychiatrists and G.P.s Engaged in Psychiatric Practice, Pharmacare Amounts Paid By Patient. These reports are distributed to both HSIC and MMC management.

C. OTHER PARTIES' VIEW OF THE ARRANGEMENT

To collect the views of those who are not part of either HSIC or MMC we met with the Deputy Minister, the Administrator Systems & Research and the Medical Consultant of the Department of Health, President of the Nova Scotia Medical Society, Director Systems Development and Support of the Systems and Computer Services Section of the Department of Government Services, the Executive Director of the Pharmacy Association and the Executive Director of the Dentists Association.

The following is a summary of the views of these individuals:-

- There is no general feeling that the program could be administered more efficiently or less costly by HSIC itself.

- Much of the current problems between HSIC and MMC are a result of personality conflicts. It was noted that the previous Executive Director of HSIC could not get along with the previous General Manager of MMC either. The "working level" can get along quite well. The current President of MMC has similar difficulties with the Pharmacy Association.

- Systems and Computer Services (SCS) believe the current systems do what they currently do quite efficiently. That is, the current batch assessment program is quite efficient. They acknowledge it is time to upgrade the systems. In fact, both MMC and SCS have prepared conceptual designs of new systems that use some of the more current approaches and technology.

- Getting new systems developed by SCS is a major problem. It has been a major problem for organizations in addition to MMC. We were advised to try to get the system away from SCS if systems like those in the other provinces were being contemplated.

- The audit function is quite properly part of the MMC administrative function. HSIC does not have the resources to take on more of this function and should not try.

- It would be advantageous if the research function covering all provincial health care programs could be combined within one department. This

would save costs and allow for a much better across program approach. This along with the registration function should be within the Department of Health.

- The President of the Medical Society believes the relationship between HSIC and MMC not to be a problem. The Medical Society has very little, if any, control over MMC. The question of MMC "ownership" is never discussed at Medical Society meetings. The process of appointing MMC board members is quite informal. The seats are not sought after. Names are recommended by regional executives and appointments made from those names. No benefits, financial or otherwise, flow to the Society from Benefits Services Corporation or MMC. (The current President of the Medical Society was previously Treasurer and he says he would have known if any benefits did flow back.)

- The President of the Medical Society believes HSIC has the mandate to conduct utilization and quality of care reviews. The physicians are willing to act as consultants to HSIC through the Provincial Medical Board not through the Society. However, the President of the Society indicated a willingness to explore ways the Society could work cooperatively and was interested in learning more about the Manitoba approach.

D. AREAS OF UNCERTAINTY AND DISAGREEMENT ON ROLE

As will have been noted from reading the HSIC input earlier in this chapter, HSIC questions the efficiency and effectiveness. It believes the administrative function could be done at less cost to the taxpayer by consolidating it within the Commission. This, of course, is not so much a disagreement on the role as it is on how well the role is being carried out.

Setting this aside, there appears to be two areas of specific disagreement.

One is the influence that the Medical Society has on the administrative activities related to physician services. HSIC believes there is an influence that results in claims for physician services being less thoroughly audited than pharmacy and dental claims. MMC disputes this.

Another is the extent that MMC makes policy-type decisions. One example given is the time MMC decided to audit pharmacy claims by getting samples of pills from the pill bottles of senior citizens. HSIC believes it has the responsibility for directing MMC on audit procedures. MMC defining audit techniques is all part of administration except where it impacts the budget.

IV

COMPARISON OF THE NOVA SCOTIA ARRANGEMENT WITH OTHER PROVINCES

No two provinces in Canada administer the same health care programs in the same way. Programs vary, the use of computers varies, the organization structure within each province is different from that in another province.

The focus of this review is not on the programs. Rather it is on the administrative arrangements, on the size and nature of the organization, the use of information technology and where possible a comparison of the efficiency and effectiveness of the Nova Scotia approach with that in other provinces. Four other provinces have been reviewed, Saskatchewan, Manitoba, New Brunswick and Newfoundland.

Arriving at a cost comparison that gives the definitive answer on whether MMC's costs are high or low is extremely difficult and requires a more extensive analysis of the costs in other provinces than could be done in this review.

In this review we have done a thorough review of MMC expenses, breaking them down by program, with the hope that comparable data would be available elsewhere. Even with excellent cooperation from other provinces we find comparative data lacking. The following sections review the other provinces insured programs on comparison with Nova Scotia.

A. SCOPE OF PROGRAMS

Saskatchewan's Medical Care Insurance Plan and Health Prescription Drug Plan has similar scope to Nova Scotia's with some variations. For example, the Prescription Drug Plan is a co-pay program covering all (eligible) Saskatchewan residents, not just seniors. The Children's Dental program covers children from ages 5 to 13. The province has negotiated a uniform payment plan that is essentially administered by the Dental Association. The coverage Supplementary Health Care program includes transportation of people in the north of Saskatchewan to the nearest hospital and clinic.

Manitoba's Pharmacare program also covers all (eligible) residents of Manitoba. The Children's Dental program appears to be slightly less inclusive than either Nova Scotia's or Saskatchewan. It covers rural children from 5 to 14 (excluding Winnipeg and Brandon) and is given by government dental teams, not dentists.

New Brunswick government officials note that their province has not expanded the program beyond that required by the Canada Health Act. They have no children's dental program and coverage for optometrical services is limited to one examination for children

under 17 (19 where a problem is identified). The Pharmacare program in New Brunswick is similar to Nova Scotia.

Newfoundland's co-payment dental program coverage is for children to the age of 12. The Newfoundland Medical Care Commission does not currently administer the pharmacare program but pays for radiology interpretive services.

B. ADMINISTRATIVE STRUCTURES, RESPONSIBILITIES AND ACCOUNTABILITY

Effective January 1, 1988 Saskatchewan's Commission was disestablished and the responsibility for administering the Plan was transferred directly to the Minister of Health. The Executive Director of the Medical Care Insurance Branch reports to an Associate Deputy Minister. Reporting to the same Associate Deputy Minister are four other branches, Prescription Drug Services, Finance & Administrative Services, Information Services and Vital Statistics. The Registration function is within the Information Services branch. The Policy and Health Economics Branch that reports directly to the Deputy Minister is developing a utilization review process. The Branch has its own administration and statistical sections that function much like the corresponding functions at MMC/MSI.

The Manitoba Health Services Commission has a very broad area of responsibility in comparison to most other provinces reviewed. Its responsibility includes hospitals, personal care homes, provincial laboratories and other related health care facilities. The Commission is headed by a board appointed by government, an Executive Director and a substantial organizations structure beneath the Executive Director. Originally it was thought that the Commission would become a crown corporation like Manitoba Hydro. This has not happened. While the Commission is, in many ways, quite autonomous it does not, for example, have the latitude to hire and fire employees. This is done through the Civil Service Commission. Since 1982 the Executive Director of the Commission has also been the Deputy Minister of Manitoba Health. Some consideration and study has been done regarding the possibility of dismantling the Commission and bringing it directly under Manitoba Health. But this has not yet taken place. At present, the Commission and Manitoba Health are looking at opportunities for amalgamating some personnel and finance functions. These have been identified as possible areas of duplication between the organizations.

New Brunswick's insured services programs are administered by the Public Health and Medical Services Division of the Department of Health and Community Services. Within this Division are two sections, Medicare and Prescription Drug, each one with a director reporting to the Assistant Deputy Minister. The Medicare section handles registration of all eligible residents except native people who are handled through Health & Welfare Canada.

In Newfoundland, the programs referenced above are administered by the Newfoundland Medical Care Commission appointed by the Minister of Health. Beneath the Commission is an Executive Director and staff that performs all of the normal

administrative functions including maintaining the MCP registration database. The Executive Director reports to the Minister on a day-to-day basis and liaises regularly with the Deputy Minister of Health.

C. THE POLICY INTERPRETATION AND ADMINISTRATION CONTINUUM

The functions generally falling under MMC's current operation is a continuum that includes the following:-

- Registration of eligible beneficiaries
- Registration of providers
- Claims reception and (data) input
- Eligibility edits
- Assessment
- Payment
- Verification audit
- Appeals on interpretation
- Utilization review and research
- Program evaluation and policy change

All provinces must perform similar functions. Obviously, because of the difference in programs and organizations the processes differ even though the objectives are generally the same. The following are the significant differences:

- Manitoba has a family medical insurance card much like Nova Scotia. However, the Commission also has an "invisible" Provincial Health Insurance Number (PHIN) that is assigned to the individual and never changes. This allows the Commission to consolidate health-related data from various programs and services over an individual's lifetime irrespective of change in marital status, etc. This is a significant factor in the Commission's utilization review process. The Commission sends out statements every 10 to 12 months to residents with no claims activity. This and other activities help ensure the registry is up to date.

- All provinces are moving towards the reception of claims in machine-readable form. In Nova Scotia about 30% of claims are submitted in machine-readable form. Saskatchewan's Prescription Drug Program is an on-line system whereby the pharmacists are linked directly to the government's computer with no government data entry required. About 40% of physician claims are submitted either by telecommunications or on diskette or some other acceptable machine-readable medium. This is expected to grow to at least 60% in the next five years even without an aggressive incentive program. In Manitoba, about 30% of claims are received in machine-readable form. New Brunswick has been using an Optical Character Recognition (OCR) physician claims submission process for a number of years now. The physician is required to code the claim in a form ready for processing. In addition, since 1981 New Brunswick has allowed a growing number of physicians to send in claims using telecommunications. It is estimated that 10% of physicians claims are received in this form. Pharmacare claims are processed by Blue Cross. In Newfoundland about 20% of physicians' claims are submitted on diskette.

- Claims assessment in all provinces is done on a main-frame computer system not operated by the medicare group. In Saskatchewan, the processing is done on a contractual basis on a computer at Westbridge Computer Corporation, a privately operated service bureau. In other provinces processing is at the provincial data centre. In Saskatchewan, assessment rules are table driven. Departmental staff can amend the tables without need for programming assistance. (Nova Scotia is similar to Saskatchewan in this respect.) In all other provinces, changing assessment rules requires programmers. There was little apparent difference in the rigour of the claims assessment processes. The approaches seem to be the same. On direct questioning the directors could not think of any material way in which their assessment was less complete than other provinces, particularly with the recently instituted reciprocal billing procedures.

- Nova Scotia does not have on-line assessment files or a process for correcting or reviewing assessment errors using on-line terminals. All other provinces have this facility. While there is some variation in the sophistication of the facilities in the other provinces, all are substantially better than Nova Scotia.

- Nova Scotia pays providers every two weeks, some by cheque and some by direct bank deposit. Payment is made from HSIC bank account, not MMC. In Saskatchewan, payments are made weekly, mostly by direct bank deposit. Payment is from a special appropriation from the General Consolidated Fund. In Manitoba, the Commission has its own bank account from which it makes all payments. It has not yet implemented direct deposit. Newfoundland notes almost 100% of provider payments are on direct deposit.

- MMC currently sends out a 1% verification audit on claims. They use a positive response whereby the beneficiary is asked to confirm that he received the specific service for which a provider has claims payment. All of the other provinces do similar audits. Most believe the audit has marginal benefit from the perspective of identifying and recovering improper payments. But it does serve some purpose in making the beneficiaries aware of the cost and showing providers that there is an audit procedure. All provinces appear to use the same 1% random rule although some indicate their selection has not been as random as it should have been. Manitoba seems to use a much more extensive process. It makes the 1% random selection from claims received. Then it sends the beneficiary a Notification of Benefits Paid showing all claims of that individual, including costs, over a certain period of time. They ask for response if the statement does not appear to reflect actual services received.

- Saskatchewan is just beginning to develop its utilization and Peer Review process. Manitoba has a very extensive profiling system. It produces a variety of profile reports monthly. Using a Computer on Microfilm (COM) technique the Commission makes these reports available within the Department on microfilm with, of course, the facility to produce a printout from the microfilm. Once a year the Commission produces a individual practice profile statement for each provider. This shows the provider how he/she stands relative to his peer group on services referred as well as services claimed. A practice profile kit is also prepared for the Medical Review Committee showing those providers that are in the top 16% of each block of practice using a CHI Squared analysis. These kits are reviewed in a Peer Review process and the Commission has various ways of approaching the providers to get an adjustment in practices that seem to be inappropriate. The primary thrust of this process is behavior modification, not reclaiming of excess payments.

- Manitoba and Saskatchewan both have research functions outside of the branch that administers the plans. Newfoundland and New Brunswick would like to have more resources to do more research into programs offered but do not currently have the resources. In both cases this research would be done within the organizational units responsible for administering the plans.

D. COSTS OF ADMINISTRATION

1. Methods used to estimate costs for comparison purposes:

We have included the following costs within the scope of administrative costs:

- Promoting the plan to the public.
- Registering eligible residents and providers.
- Receiving claims, preparing them for processing, and testing claims for validity (editing, eligibility checking, and assessment)
- Issuing payments to claimants.
- Monitoring patterns of claims to identify abuses of the system or other issues of concern (auditing).
- Preparing statistics for the use of HSIC, the Minister of Health and other parties.

Due to the differences in plans discussed above, it is very difficult to appropriately compare the costs of administration in different provinces. We have broken down total administrative costs into costs for each plan and costs for each department at MMC that performs tasks for the public plans.

Another difficulty in costing is the timing of financial data. The reports we used for estimating had varying counts for claims, claims value, etc., depending on the time of production and type of report. We have used averages of conflicting figure for our estimates.

MMC's accounting system maintains costs divided into three groups depending on the department. That is, departments that:

- Work only for the public plans.
- Work for both the public plans and the private plans
- Work only for private plans

We are only interested in the public plans, and therefore have used the actual figures from the public departments plus MMC's allocations for each of the shared departments' costs for public plans. The allocations are reviewed annually by the Auditor General of the province.

We have also broken down the total MSI costs by plan. This also requires an estimate, in most instances, of the relative costs of each plan in each department. Details of our allocations can be found in Appendix A.

Exhibit IV-1 shows a table of the estimated costs by plan. Because the 1988/89 financial figures are not complete yet, we have based our estimates on 1987/88 figures. We discuss costs below and, where data are available, compare the costs with other provinces.

Exhibit IV-1
Estimate of 1987/88 Administrative Expenses by Department and Plan
(in dollars)

	Medicare	Optometric	Dental Surgical	Childrens Denticare	Pharmacare	Total MSI	These Plans
MSI expenses only							
Registration & enquiry dept.	694,356	0	0	186,796	109,944	991,097	
Code & control & Microfilm dept.	561,429	10,600	2,685	42,418	201,377	818,510	
Medical assessment dept.	794,877	0	0	0	0	794,877	
Dental assessment dept.	0	0	7,306	115,408	0	122,714	
Research & statistics dept.	178,288	3,366	853	13,470	63,950	259,927	
Info Offices	169,598	3,202	811	12,814	60,832	247,257	
Public Management	716,770	0	0	0	0	716,770	
MSI Pharmacare dept.	0	0	0	0	345,438	345,438	
Data entry dept.	814,524	20,505	5,362	84,701	356,245	1,281,338	
MSI Audit dept.	126,424	2,387	639	10,095	174,843	314,388	
Sys. Plan. & Dev. dept.	66,230	1,250	317	5,004	23,756	96,557	
Total MSI expenses unshared	4,122,497	41,312	17,972	470,707	1,336,385	5,988,873	
Shared expenses							
Pharmacare Assess. dept.	0	0	0	0	169,475	169,475	
Accounting & Admin Services depts.	414,369	7,824	1,982	31,307	148,628	604,110	
Per., Bldg, Gen Mgmt & Cafeteria depts.	640,858	12,100	3,065	48,419	229,867	934,309	
Programming	14,133	267	68	1,068	5,069	20,604	
Computer operations	6,702	127	32	506	2,404	9,771	
Total MSI portion of shared expenses	1,076,061	20,317	5,147	81,301	555,443	1,738,269	
Total expenses	5,198,558	61,629	23,119	552,008	1,891,827	7,727,142	
Number of services	6,841,568	129,176	32,722	516,909	2,453,975	10,353,666	
Average cost per service	1	0	1	1	1	1	
Number of claims received*	5,754,551	132,854		276,166	2,147,980	8,311,551	
Average cost per claim **	$0.91	$0.46		$2.00	$0.88	$0.93	
Value of claims paid	189,990,759	3,626,354	2,575,378	12,398,795	55,210,780	263,802,066	
Number of claims paid	5,555,741	129,227		259,358	2,098,674	8,043,000	
Value per claim **	34.66	28.06		47.81	26.31	32.80	

Source: 1987/88 Annual Report and Cost and Variance Reports
* Source: MSI Claims Processing Fact Sheet
** Medicare figure includes Dental surgical

2. Total overall costs

a) Introduction

We have broken down the MSI Administration costs into physicians services and drug plan services. These two plans make up over 92% of claims value and number of claims. This separation makes more meaningful the comparisons of provinces where the two types of services are administered by separate organizations.

Exhibit IV-2 shows a summary of the costs and averages by claim and service where available. However, there is a danger in comparing these figures without understanding some of the reasons that vary between provinces and programs. We have noted some of the major differences in the discussion of each province's figures below.

b) Nova Scotia

Our breakdown of administrative costs by plan, as shown in Exhibit IV-2, shows the Medicare plan to have cost about $0.93 per claim, $0.77 per service or 2.7% of claims paid in 1987/88. For Pharmacare the figures are $0.91 per claim, $0.76 per service or 3.4% of claims paid.

c) Saskatchewan

In Saskatchewan, if we consider only physicians services, the 1988/89 administration cost was $5,200,000 for 13,200,000 services (8,500,000 claims) totalling $232,000,000. This is about $0.61 per claim, $0.39 per service, or 2.2% of the value of claims paid. For the drug program, the total administration cost was $1,900,000 for 5,400,000 claims totalling $59,300,000. This is about $0.35 per claim or 3.2% of the value of claims paid.

These figures appear to be lower than those of Nova Scotia. However, there are major differences in the administration in Nova Scotia and Saskatchewan. One of these is the registration of beneficiaries. In Nova Scotia registration is done by MMC and is included in the cost of administering the program. In Saskatchewan registration is done by the Information Services Branch, separate from the Medical Care Insurance Branch that administers the physicians services plan. In Nova Scotia the cost of registration and inquiry added the equivalent of $.12 to the total administration cost for each claim in 1987/88. Therefore to compare Nova Scotia and Saskatchewan more appropriately we would consider only the cost after registration, i.e. $0.81 for Nova Scotia and $0.47 for Saskatchewan.

Comparing provinces on the basis of administrative cost per claim is further complicated by the number of services per claim. We do not have information on the number of services per claim for the Saskatchewan drug plan.

Exhibit IV-2
COMPARISON OF OVERALL COSTS

	N.S.	SASK.	N.B.
Medicare Plans			
Claims (millions)	5.6	8.5	3.9
Services (millions)	6.8	13.2	4.8
Administrative costs (millions) *	$5.2	$5.2	$4.2
Claims value (millions)	$190.0	$232.0	$139.0
Administrative cost / claim	0.929	0.612	1.077
Administrative cost / service	0.765	0.394	0.875
% of claims value	2.7%	2.2%	3.0%
Normalized claims value **	$171.2	$223.1	n/a
% of normalized claims value	3.0%	2.3%	n/a
Pharmacare Plans			
Claims (millions)	2.1	5.4	1.4
Services (millions)	2.5	n/a	n/a
Administrative costs (millions) *	$1.9	$1.9	$0.7
Claims value (millions)	$55.2	$59.3	$55.0
Administrative cost / claim	0.905	0.352	0.500
Administrative cost / service	0.760	n/a	n/a
% of claims value	3.4%	***	1.3%

* Figures for N.B. include only staff salaries and data processing costs.
** Medicare claims value normalized by adjusting for the higher than average cost of services. N.S. factor = 1.11; Sask = 1.04
*** Saskatchewan Pharmacare claims do not represent cost of drugs provided.

Another aspect of a Nova Scotia -- Saskatchewan comparison of administrative costs as percentage of plan is the design of the drug plans. All Saskatchewan residents are eligible for the co-pay prescription drug plan. Nova Scotia's plan is for seniors only.

d) New Brunswick

We do not have total administrative costs for New Brunswick. In 1987/88 physician services cost about $1,678,000 in salaries and $2,519,000 in data processing to administer about 3,900,000 claims (4,797,000 services) totalling $139,300,000. This means over $1.08 per claim, over $0.88 per service and over 3.0% of claims value.

New Brunswick drug program is administered by Blue Cross, a private corporation, at a cost of $670,257 for 1,380,272 claims worth $55,000,000. This works out to $0.50 per claim and about 1.3% of claims value.

3. Promoting the plan to the public

MMC is responsible for the preparation of literature to educate the public and providers about the MSI plans. As well, MMC provides the MSI registration forms, membership cards and claims cards free of charge to the providers and recipients of the plans. MMC also operated three branch offices (Halifax, New Glasgow and Sydney) to provide local information and inquiry services to many of the province's residents.

In 1987/88 the promotional activities cost about $717,000 for Medicare plan plus $398,833 for Pharmacare. The information offices costs are about $257,000. About $193,000 of these costs are for computer services provided by SCS.

We do not have similar figures for other provinces' plans.

4. Registration and Enquires:

To be eligible for registration in the MSI plan, a resident must apply for an MSI identification number. Once registered for Medicare, residents automatically become eligible for the Denticare and Pharmacare plans when they reach the proper age. Therefore, most of the costs of registration are allocated to the Medical plan.

Prior to a resident's 65th birthday, MSI sends out a form for the resident to apply for a Pharmacare identification card. Therefore, because of postage and cards costs, another part of the registration department costs are for Pharmacare.

The total costs for registration and inquiry are about $1,005,000, or $1.16 per eligible resident.

About $188,000 of the total costs of registration and inquiry are for computer services from SCS. Registration and inquiry are on-line functions which were new to the system in 1986.

New Brunswick spent about $896,000 on Medicare staff salaries ($406,000) and data processing ($490,000) to support registration and inquiry functions. Other elements of the total registration and inquiry costs are not available but these two elements represent about $1.16 per eligible resident, which is equal to the total Nova Scotia cost of registration and inquiry.

We do not have this breakdown for other provinces.

5. Claims handling

Claims handling includes coding and control of cards and diskettes, claims assessment (either before or after computer edits), rejection handling and microfilming claims cards.

About 70-75% of the claims received at MMC are on claims cards and the remainder on diskettes. The cards are counted, batched and logged. Logging claims is done at several points during the process of editing and assessing claims.

Three groups of clerks visually check the claims cards to ensure required information is present. The clerks also code additional information:

a) For medical claims, the diagnostic code is added by a clerk in the coding and control section.

b) Dental coding is done by a clerk in the Dental Assessment department, by adding surface code information to the card. The Dental assessment clerk also assesses the claim manually when coding the card.

c) Pharmacy claims are checked for compounds and coded with the Drug Identification Numbers. Pharmacy coding is done in a department which is shared by the public and private drug plans. About 83% of the costs of this department are for the public plan.

Claims on diskette do not require coding, as the coding is done at the providers' offices. MMC copies the diskette records to computer tape, avoiding the data entry process for these claims. However, the data records are printed onto claims cards for consistent rejection handling.

All claims cards are microfilmed for future reference, and the cards destroyed after a month.

When the computer tape has been processed at SCS, the rejected claims reports and claims history, if required, are printed and returned to the appropriate

assessment department at MMC. The claims may be rejected for reasons which fall into four categories:

- Invalid data on the claim.
- Recipient or provider is not eligible.
- Incorrect fee claimed.
- The claim does not pass the computerized assessment rules.

An assessor deals with each error by pulling the claim card. For assessment rule errors, the assessor may request a copy of the microfilm which is reviewed along with the history printout provided by the SCS computer, to resolve the error. A rejected claim is handled in one of the following ways:

- Approved and sent to data entry for re-keying.
- Changed and sent to data entry for re-keying.
- Returned to the claimant.

Coding and control, manual assessment, rejection handling and microfilming cost about $2,251,000 in 1987/88 or about $0.28 per claim paid. We would expect that this average would drop slightly as more providers start to submit claims on diskette.

A large part of the claims handling cost is for manual assessment. If we look at the plans individually, we find that the total cost of manually assessing medical claims was $795,000 or about $0.14 per claim received. For the Denticare plans all of the assessment is done manually, due to the inability of the computer system to do it. The costs here were $115,408 for 276,000 claims, or $0.42 per claim. For Pharmacare, the total of claims handling and assessment costs about $514,913 for 2,148,000 claims, or $0.24 per claim.

In New Brunswick the staff salaries and data processing costs total about $2,312,000 for claims processing and assessment, or $0.55 for each claim or $0.45 per service. This compares with $0.42 per Medicare claim in Nova Scotia (all costs included.)

6. Auditing claims

Auditing refers to the review of claims for validity, after they have been paid. There are several methods of auditing, depending on the plan.

Weekly audits of 1% of the week's paid claims indicate whether claims are being made fraudulently. Utilization studies and practice profiles identify practitioners or

beneficiaries who may be abusing the plans. Pharmacy audits ensure that physicians have issued prescriptions for the drugs claims.

Internal audits (i.e. within the MSI offices) are done for all three types of coverage - Medicare, Denticare and Pharmacare. These audits are done by MMC staff using the computer reports prepared from the claims history files, printed either at SCS or by MMC's Research and Statistics Department.

The Pharmacare audit is an external audit, which is done at least once a year at each participating pharmacy in the province. This audit uses the pharmacy's records as well as MSI claims reports.

Exhibit IV-3 shows auditing costs by plan.

EXHIBIT IV-3
Audit costs per claim

Plan	Internal	External	Total
Medicare	$0.023	$0.000	$0.023
Denticare	$0.039	$0.000	$0.039
Pharmacare	$0.031	$0.052	$0.083

7. Data entry

Card claims are keyed onto computer tape for submission to the SCS data centre. In addition, claims with errors, whether received initially on cards or diskette are corrected by re-keying them. The data entry costs per card claim are:

Plan	Cost/claim keyed
Medicare	$0.20
Denticare	$0.33
Pharmacare	$0.24

There are no SCS costs included in the data entry figures. All data entry is done at MMC using their own equipment.

8. Office space

MMC currently occupies 35,419 square feet of office space in the new building in Burnside Industrial Park. Of the total, 33,525 square feet are allocated to the public plans, which equates to about 181 square feet for each of the 185 employees who work with the public plans.

The total space includes storage for claims in process and other records and reports.

The amount of office space per employee varies by department. The low is about 72 square feet per employee in the data entry department which is staffed almost entirely by clerical staff. The high is over 1000 square feet per employee in the executive offices.

Guidelines used by the Province of Nova Scotia Management Board (Manual 100, Chapter 4, Standard Procedures) indicate that about 70 square feet are required for each clerical and secretarial staff member for work-space and about 25% more to allow for a portion of space common to multiple workers (halls, washroom facilities, etc.) So looking at the clerical data entry staff, MMC staff have slightly cramped work-space.

However, the executive offices have more than double the 500 square feet per employee that is allowed for ministers of the Province of Nova Scotia.

Disregarding the executive offices and storage space, we estimate that an average MMC employee, has about the same space as a middle manager in a government department, i.e. section head or supervisor.

The cost of this space is $19.45 per square foot and includes heat, power, taxes and water. The cost of office space per employee is about $3,525.

Strictly office space in the Burnside Industrial Park area runs at about $18 to $20 per square foot, and with new buildings on the high end. Therefore, the rate MMC is paying does not seem to be unreasonable.

Exhibit IV-4, Comparison of office space, shows comparative data for Nova Scotia, Saskatchewan and Newfoundland.

EXHIBIT IV-4
Comparison of premises

Description	Nova Scotia[1]	Saskatchewan[2]	Newfoundland
Floor space (in square feet)	33,525	15,000	
Employees	185	167	
Square feet per employee	181	90	70
Cost of space	$652,000	$500,000	$237,000
Cost per square foot	$19.45	$33.33	
Cost per employee	$3,524	$2,994	$3,386

[1] Cost includes space, heat, power and water in 1988/89.
[2] Does not include drug plan.

Saskatchewan uses only about 15,000 square feet in administering the physicians, dental and optometric services. This is about 90 square feet per employee. Although the cost per square foot is higher at $33.33, the cost per employee is $2,994, about 85% of the Nova Scotia cost per employee. But we understand Saskatchewan is contemplating some space changes.

Newfoundland spent about $237,000 for heated, lighted office space for about 70 staff ($3,385 per staff member.)

9. Employee benefits

Employee benefits form part of the administrative costs. The benefits of MMC employees are fairly similar to the benefits for which Nova Scotia government employees are eligible. Below we note the major differences in benefits.

a) Vacation

An MMC employee must work for three years before eligible for three weeks vacation per year, but a government employee gets three weeks immediately. However, MMC employees are entitled to four weeks after eight years, and government employees only after 10. So an MMC employee after 10 years has received 29 weeks of vacation and a government employee 30 weeks.

b) Group health benefits

MMC employees receive 100% coverage for prescription drugs and eyeglasses to a maximum value of $125 every two years, at no cost to the employee.

Government employees pay $3.00 for each prescription and have eyeglasses coverage to only $100.

c) Dental benefits

Maximum benefit payable per person is $1,500 at MMC and $1,000 at the province.

d) Pension

MMC contributes 125% of the amount the employee contributes to a pension plan. The provincial government pays only 100%, although employees may contribute a higher amount than at MMC.

e) Long-term disability plan

MMC employees are entitled to Long-Term Disability after 105 days. The plan will pay 75% of monthly salary to a maximum of $3,200. The government plan pays only 70% but has a higher maximum ($4,000) and pays five days sooner. Both employers pay half the cost of premiums for long-term disability coverage.

f) Group Life Insurance

MMC's plan uses a multiple of three, two or one times gross salary, to a maximum of $175,000 depending on position and dependents. The government plan provides only two times salary, with a maximum of $60,000.

g) Miscellaneous benefits at MMC

MMC employees pay a nominal charge ($2 per month) to occupy a parking space at the MMC office. This is essentially free parking, but this is probably not perceived as a benefit to those employees who do not drive to work, or those who walked to the previous offices on Spring Garden Road.

MMC provides a cafeteria for employees. However, the food is priced to cover the operating cost but not the facility. This is consistent with practices in other insurance companies but differs from practice in downtown Halifax, for example, where public restaurants are more plentiful.

E. INVOLVEMENT OR RELATIONSHIP OF FEE-FOR-SERVICE PHYSICIAN COMMUNITY

Nova Scotia is the only province in which the insured physicians services program is administered by an organization outside the provincial government structure.

All other provinces have relationships with the physician services community. All have Joint Professional Review Committees with some nominees by the provincial Medical Association. Senior Saskatchewan officials note that they have consultation with the Board of the Medical Association on a monthly basis. In a similar vein, Manitoba notes that ongoing review of the application of tariffs is done by a Committee of Commission staff plus representatives from the Manitoba Medical Association' Fee Tariff and Economics Committee.

The nature of the Committees, the frequency of meetings and the degree of apparent involvement of the physician community vary substantially from province to province. The influential involvement of this community does not appear to be any greater in Nova Scotia than in the other provinces.

V

A GENERAL REVIEW OF THE USE OF EDP IN THE ADMINISTRATION AND AUDITING OF THE PLAN

A. OVERVIEW OF EDP SYSTEM

The present EDP system includes three applications, Medicare, Denticare and Pharmacare, which help MMC to administer the Nova Scotia Medical Services Insurance Plan (MSI). There are other smaller plans included in MSI, but these are not handled by the EDP system at present.

All three systems run on the large scale IBM mainframe at the Systems and Computer Services (SCS) data centre. Software support (development and maintenance) is provided by SCS. SCS bills MMC on a monthly basis for computer usage and the software support. All MSI computer usage charges are covered by the provincial Department of Health.

In addition to the SCS computer, MMC has specialized computer equipment for data entry, and a computer which is used primarily for processing private claims.

Exhibit V-1 shows the general flow of data between MMC and SCS. Claims are received at MMC in the form of cards; Medicare and Pharmacare claims records are on cards accompanied by diskette records. About 70% of claims are on cards, on which information has been hand written or typed by the service provider or the service beneficiary.

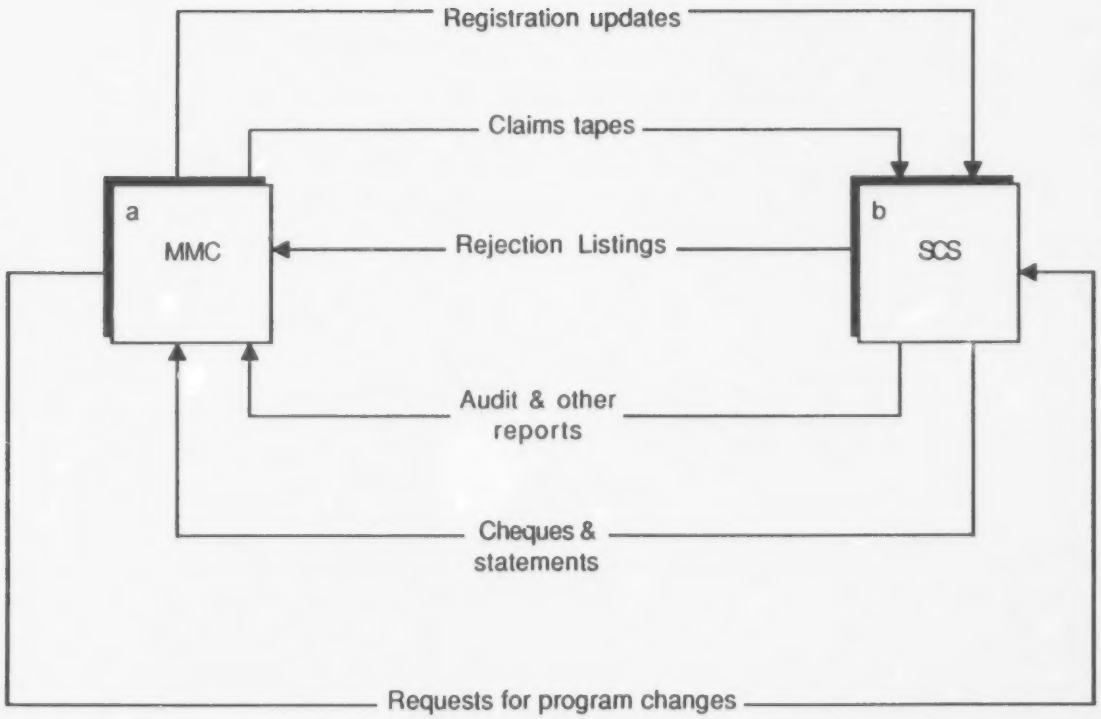
Card information is keyed onto computer tape. The data entry system has editing capabilities (CADE system) which include verification of the check digit in the MSI number, range checks on dates and other data and other edits which can be done without accessing MSI data files.

Diskette information is copied onto computer tape. Diskette submissions are becoming more common, especially for Pharmacare claims. If cards are not provided, they are printed by the MMC computer, to facilitate the correction and re-processing of rejected claims.

The tapes are then taken by truck to SCS, where they are edited by the computer system in two ways:

- Verification of individual claims. This function verifies eligibility of the patient, the physician and the fee amount for each individual claim. All three systems access the MSI resident's file to test eligibility.

Exhibit V-1


Registration updates
Claims tapes
a
MMC
Rejection Listings
b
SCS
Audit & other reports
Cheques & statements
Requests for program changes

- Computer assessment of claims. Assessment relates the individual claim to the patient's history of claims prior to approving the claim for payment. The computer assessment uses assessment rules derived from the policies set by HSIC. Files of assessment rules are maintained by MMC staff, with no SCS involvement.

Rejected claims are printed on lists along with patient history for certain types of rejections. These claims are then manually assessed at MMC, and the corrected claims are re-keyed onto computer tape and resubmitted to SCS for the next week's processing run.

Claims which are accepted by the computer system are written to files from which payments are created, weekly (for payments to patients) or bi-weekly (for payments to service providers). Payments are in the form of cheques or bank deposit transactions.

The SCS computer prints a variety of statistical reports.

Auditing refers to post-payment review of the claims. MMC performs various audits of paid claims on a regular basis. Most of the audits use lists which are printed by the SCS computer, although MMC has the ability to download MSI data to a microcomputer at their premises, to do other audits as required.

The systems use a Residents Master file which is maintained via terminals at MMC. This is the only on-line function in the MSI system. Residents complete an application form which MMC uses to determine eligibility, and then keys the data from the form into the Registration system.

Prior to approving eligibility of a provider, MMC obtains proof of license from the appropriate provincial board (Provincial Medical Board, Provincial Dental Board or Nova Scotia Pharmaceutical Society). Provider registration is not done on-line, but keyed onto tape at MMC and then input to the computer system at SCS.

B. USE OF THE SYSTEM IN PAYING CLAIMS

1. Medicare

a) History of the system

Medicare is a plan which pays for medically required physicians services and optometric services for all residents of the province. About 120,000 claims are processed weekly under this plan.

The system currently in use for Medicare administration was written in the 1968/69 time frame to run on the Government Services IBM mainframe. As part of

the agreement between MMC and the provincial Department of Health, the MSI plan would run on the Government Services computer and be maintained by government staff.

The software is obsolete relative to modern-day standards of computer systems. The MSI application was one of the first at the data centre to use files stored on disk, although the claims data is stored on tape files. It was written in Assembler code. Assembler is a second generation programming language which can be very efficient in its use of computer resources, but is now outdated. In most shops it has been replaced by third or fourth generation languages. The later generation languages are more efficient, and thus less expensive, to program and maintain.

b) Problems of the current system:

i) Software maintenance staff: One of the biggest problems of the current system is in maintenance of the software. SCS currently has only four people who can maintain the Medicare and Denticare systems. Programmers who can modify assembler programs are becoming more scarce as time goes on.

ii) Batch only capabilities: Except for the registration function, all Medicare functions use batch processing methods. Batch systems typically list rejected transactions on hardcopy error reports. The clerk who investigates the rejected card must then physically locate the rejected card and make the change on the card. The card's data is then key punched again and resubmitted to the computer. The re-processing of the transaction is then delayed until it is time to process the batches.

An alternative to batch processing is on-line transaction processing. With on-line transactions, there is no need to re-keypunch the card. A rejected claim could be displayed on a screen and could be corrected and resubmitted for processing immediately.

The longer time frames and more steps associated with batch processing have made it more expensive in terms of clerical costs, and to a large degree it is being replaced in data processing shops by on-line transaction processing.

iii) Assessment procedures: The system allows up to 32 services to be submitted on one claim card from the physician's office. The first error encountered in one of the services, causes the entire claim to be rejected. All services on the claim must then assessed manually, and resubmitted to the computer for processing.

iv) Rejection processes need to be rethought: Many of the cards which are rejected may not need to be rejected, depending on policy changes which could be made to reduce costs. For example, although the fee claimed may be calculated incorrectly by the physician's office when making the claim, the fee from the tariff is the fee which is paid. Therefore there may be no need to reject these claims when the fee claimed is not equal to the fee from the tariff. Reducing the number of such rejections would reduce the clerical cost of processing claims.

v) Paper reports: The current system produces a large volume of hardcopy reports. Up to 14,000 pages of patient history alone can be printed for the medical claims assessment function in one week.

vi) Timeliness of reporting: The current system can take up to a week after a request is made to produce a non-routine printout.

vii) High data entry costs: The claims cards submitted must be keyed to magnetic tape prior to computer processing. Although many providers are now sending claims on diskettes, the majority of claims are still received on cards. Because the clerical side of claims administration is designed for cards, the diskette data is printed onto cards for rejection processing and microfilming. This results in a high degree of redundancy. One claim may exist on a diskette, a card, microfilm, and computer tape, before it even reaches the computer and is copied onto more files.

viii) Control of cards: There is a significant effort required to control the flow of cards throughout the organization's process flow, through counting, batching, logging and re-logging.

ix) Redundant editing: The CADE system performs a variety of edits as data entry is done, e.g. checking the MSI number's check digit, range checks on date elements, line number sequence checks and batch balancing. These edits are performed again by the computer system at SCS, along with other checks.

x) Costs of pulling claims: The continual pulling and re-filing of claims cards and photocopying microfilm records (about 50,000 per year) to support manual assessment is expensive in terms of costs of clerical efforts.

xi) Volumes of records: Because the claims history detail file is on computer tape, the entire file must be read (about 4 million records), to print history and to prepare some of the statistical reports.

c) Maintenance and enhancements planned

About 18 months ago MMC prepared a study of the current system and opportunities for improvement. This study suggested a replacement of the current system with a new system but the study was rejected by SCS. The main reasons for this study were the shortage of government staff to make changes to the current system and the current system's batch processing constraints.

Since that time, SCS has initiated a similar study by an external consultant, SCS staff and MMC staff. HSIC staff will also be involved at a later time. The preliminary overview of the study has been issued and is under review by MMC and others. Funding to complete the study is in question at this time. Implementation of the study results is also in jeopardy due to lack of funding. Implementation could be possible within three years if funding can be secured.

Some of the objectives of this study are:

- Reduce front end data entry costs.
- Allow more free format information to be stored on the claims history.
- Reduce the paper and paper associated costs of the current system.

2. Denticare system

a) History

Denticare pays for dental services for children and dental surgical in-hospital services for all eligible residents of the province. About 4000 claims are processed weekly under this plan.

The Denticare system software is a special version of the Medicare system. Coverage for in-hospital dental surgery was included in the Medicare plan prior to 1974. In 1974 the MSI Children's Dental Plan was added and a copy of the Medicare system was modified to allow processing the new plan's Dental claims.

b) Problems of the current system:

The Denticare system is plagued by the same problems as the Medicare system plus other problems caused by the modifications. The number of unnecessary rejections is particularly high with dental claims.

c) Maintenance and enhancements planned

Although the SCS study does not specifically address the Denticare system, it is likely, in the opinion of MMC that the same philosophy will be applied to both applications, and they will be handled by the same system.

3. Pharmacare system

a) History

Pharmacare is a prescription drug insurance plan which provides payment of a portion of the cost of drugs for all residents of the province over the age of 65 who are registered under the MSI plan. About 50,000 claims are processed weekly under this plan.

Pharmacare was initiated in 1968 as a private insurance plan, by the N.S. Pharmaceutical Services Incorporated, and was administered by MMC. In 1970 the underwriting and control was transferred to MMC. In 1974 the province added prescription drug coverage for residents over the age of 65 to the MSI program. MMC

made a proposal to the government to assist them with implementing this plan, based on MMC's experience in administering MMC's Pharmacare plan.

Although the MSI Pharmacare computer system needed access to the MSI resident's file and had to do similar functions, the MSI software was not adaptable enough for use in administering a drug plan and there was very little time to provide appropriate software before the October 1, 1974 implementation date. A new system was written by SCS staff, this time in COBOL, to run on the SCS computer. It was basically a payment system, with very little verification or refinement. It was scrapped within a couple of years and replaced with another batch oriented COBOL system more appropriate to the needs.

MMC also uses this system to process drug claims for the Department of Community Services. Those drug claims are validated against the Community Services eligibility file, rather than the MSI resident's file. This file is maintained by the Department of Community Services. Community Services claims are not covered by the MSI plan.

The major functions of the Pharmacare system are similar to the Medicare system, but there is much less assessment done.

b) Problems of the current system

i) The pricing program has, over the last 5 years, been modified so extensively that it is very difficult to modify further with reliable results. One of the major changes to this program was a switch from using DIN pricing to using ASC pricing. The changes to this program will continue, due to ongoing changes in HSIC policy.

ii) There are flaws in the basic design of the system. For example, when certain data errors are found, the system changes the original input data. This makes subsequent error correction very difficult and error prone.

c) Maintenance and enhancements planned

A project has been approved by the Management Board to revamp the Pharmacare system. Two functions will be changed:

i) The pricing program will be rewritten.

ii) A program will be written to handle rejections on-line.

Unfortunately, MMC has had delays in completing the design specifications, and the SCS resources assigned to this project have been re-allocated to other urgent projects within SCS. MMC has no control over system development or maintenance of the systems running at SCS, so it not known when the changes can be

effected. In the interim, system problems continue to add to the inefficiency and inaccuracy of the system.

C. USE OF THE SYSTEM IN CLAIMS AUDITING/MONITORING FUNCTION

Claims auditing is done after the claims have been paid. It is a collections of methods to evaluate the correctness of the assessment procedures.

1. Manual Assessment

The manual assessment of medical and dental claims is one way that claims are monitored. Because it occurs prior to payment, it is referred to as assessment rather than auditing. In 1987/88 about $3.8 million in payments were avoided by the use of manual assessment techniques.

2. Weekly audits

Every week one percent of the week's claims accepted for payment are selected to be audited. The audit involves contacting the recipient of the service by mail. The recipient is asked to complete a short questionnaire and returning it to MMC in a pre-paid return envelope. About 79% are returned. This type of auditing results in 6 to 7 recoveries per month, which in 1987/88 amounted to $13,000 for the year. This method is currently under review, at the request of the Auditor General.

3. Utilization studies

On a quarterly basis the computer produces a list of all patients who have received more than 18 services during the quarter. This list is reviewed by MMC audit staff, who refer many of these to the HSIC Medical Review Committee for resolution. The purpose is to urge the physician and patient to cooperate in eliminating the over utilization of services.

4. Practice Profile

This type of audit uses an entire year's payment history. By grouping doctors into peer groups by specialization, community size and other factors, it shows a comparison of individual doctors with their peer group(s). Physicians who are significantly different from their peer group are contacted by the MMC audit staff for an explanation.

These profiles are not available until long after year end (i.e. the fall of the year.)

5. Group Practice Profile

This is a new audit facility which allows practice groups to be compared with other practice groups, similar to the comparisons done for the individual Practice Profile report.

6. Ad hoc audits

Ad hoc audits are done by the MMC audit staff, by downloading MSI data to a microcomputer for manipulation and reporting. The programs to do this have been developed by MMC.

7. Pharmacare External Audit

An MMC auditor visits each pharmacy in the province once a year. While there the auditor pulls a random sample of 100 claims and checks the pharmacy's prescription files (hardcopy or computer files) for the copy of the prescription which ordered the drug. This is becoming a more imprecise audit as time goes on, as more physicians order drugs by phone, eliminating the need for a hardcopy prescription.

8. Dental Audits

No utilization studies are done of dental claims. Most dental claims anomalies are noted by the assessors.

9. Workmen's Compensation Board Audits

At the present time WCB send forms to MMC, which are manually compared with MSI patient history. In 1987/88 this audit recovered $274,000 in double-paid claims. MMC and WCB are finalizing a design for a computerized comparison of history files from the two organizations. The new programs will eliminate one position at MMC.

D. COSTS AND VALUE FOR MONEY OF EDP SYSTEM

1. Costs of the EDP system

SCS computer services cost MSI about $787,000 in 1987/88. This was distributed across the MMC public plan departments as follows:

Department	SCS Services Cost ($)
Registration and Inquiry	188,202
MSI Audit	6,830
Medical Assessment	3,260
Research and Statistics	112,578
MSI Pharmacare	286,824
Public administration	193,310
Data entry	(4,300)
Total	786,704

On an average per claim basis these costs were $0.10 in 1987/88.

The Medicare system is 20 years old. The normal life, and thus the period for depreciation of a systems capital cost is usually 5-10 years. The Denticare and Pharmacare systems are also more than 10 years. Therefore we can assume the systems are fully depreciated and incur no accounting costs.

The systems do incur a cost for maintenance and enhancement. This runs about $70,000 but is not included in the administrative costs. System maintenance and enhancements are paid by HSIC.

2. Value of the EDP system

To consider the value of the EDP system one might consider the relative usefulness and costs of hardware, software and personnel for only EDP components such as data entry, communications, processor, system development, etc.

A system is defined as: "A set of components which interact to achieve some purpose". Therefore, to really understand the value of the MSI system, we must look beyond the EDP system to a broader definition of 'system'. EDP costs and clerical, supervisory and management costs and benefits are interdependent: When you make a change in one aspect of the system, you affect other aspects.

a) Throughput of system

One way of stating the value of a system is in terms of throughput of the total system and changes in the throughput over time.

The number of claims per full-time equivalent employee, as stated in the MMC Annual Report for 1987/88 is 43,552. It appears that the system is becoming more efficient as time goes on, as the number of claims per employee has increased steadily since 1983/84, as shown in Exhibit V-2.

EXHIBIT V-2
Throughput of MSI claims administration

	83/84	84/85	85/86	86/87	87/88	Cumulative Change
MSI employees	200	196	193	194	191	-4.5%
Claims processed (000's)	6,930	7,220	7,529	7,985	8,329	+20%
Claims per employee	34,650	36,809	38,950	41,265	43,552	+25%
TOTAL admin. expenses (in 000's)	$6,123	$6,500	$6,834	$7,328	$7,402	+21%
Admin. expense/ claim processed	$.88	$.99	$.92	$.92	$.89	+1%
Admin expense/ claim in 1971 dollars	.32	.31	.30	.30	.27	-16%

We also note that the admin. costs per claim have not risen very much (1%) during the 1983 to 1988 time frame. In terms of 1971 constant dollars, the costs have decreased about 16%.

The systems are performing the functions for which they were intended, and they have a high value for that purpose. To process 37,000 claims per week totally manually, would require a much larger staff. For example, the Medical Assessment department currently has 29 people, and they manually assessed about 10% of the total claims received in 1988. For totally manual assessment we would expect that it would take about 263 people and cost over $7 million for the assessment function alone. The current total MSI workforce is under 190.

However, if we think of the current systems in terms of the future goals of the Department of Health, we place a different value on the systems. If it is the goal of the Department to work toward a consolidated health record combining MSI claims, Hospital claims and vital statistics records, the current systems are of limited value. They cannot easily be modified, due to shortage of programming resources. They do not

support random access to individual records. Thus the systems are of very little value in meeting this goal.

b) System in comparison with other provinces

We noted above that the cost of the computing component, of the MSI administration was about $787,000 in 1987/88, or $0.10 per claim. This does not include data entry costs.

In contrast Saskatchewan spent about $1.2 million on computer processing to administer about 8.5 million medical services claims, or $0.14 per claim, and about $0.06 per claim to process their drug program claims, or $0.11 combined.

VI

ASSESSMENT OF EFFECTIVENESS AND EFFICIENCY OF THE ARRANGEMENT

For the purposes of carrying out this analysis we will use the term effectiveness to refer to how well the arrangement performs insofar as carrying out its mission. Since focussing on the overall mission of the arrangement between HSIC and MMC is of marginal use in an assessment of effectiveness, we will break the arrangement down into components, suggest the mission or objective of the component and then comment on the effectiveness.

Efficiency relates to the amount of effort or resources put into the activity in relation to the output attained. Again, we will suggest a measure of efficiency for each component and attempt to judge the efficiency based on the best data available.

A. THE MEASURES OF EFFECTIVENESS AND EFFICIENCY

1. Registration

Registration includes:

- Determining the eligibility of residents to receive benefits and providers to be paid.
- Assigning unique identification numbers.
- Issuing identification cards.
- Maintaining the computer files of eligible beneficiaries and providers.
- Answering inquiries about registration.
- Notifying residents when they become eligible for Pharmacare.

Effectiveness of this function should be measured by timeliness and accuracy. These tasks are completed effectively by using the on-line registration system.

One measure of efficiency is the cost of registration per eligible resident. The registration process appears to be efficient, costing only about $1.16 per eligible resident. New Brunswick's registration for Medicare alone is more than $1.16 per eligible resident.

We note that the resulting registration files are not currently available to other government departments. Hence, while MMC carries out its responsibilities efficiently and effectively, the arrangement can be made more effective if the resulting files are more readily available and usable by other authorized agencies.

2. Claims handling

Claims handling includes:

- Receiving and controlling claims cards.
- Coding claims for data entry.
- Data entry.
- Claims editing.
- Resolving claims errors.
- Microfilming claims cards.

We suggest effectiveness can be measured by the thoroughness (accuracy) of the process and the length of time taken to handle the claim.

There is no doubt that these tasks are being performed by the current arrangement. However, the claims handling and manual assessment could be more effective in terms of speed of throughput. It takes an average of 41 days from date of service to approval of a claim for payment. If providers were paid weekly instead of biweekly we might find this average would drop to 34 days. This contrasts with the 21 day average in Saskatchewan for physicians services claims paid on a weekly basis.

Examining the claims edit process itself we find that the Nova Scotia process rejects about 9.8% of claims per week, close to the Saskatchewan and New Brunswick Medicare rejection rates of 8.9% and 9.0% respectively. About 3% are returned to claimants in Nova Scotia and about 2.5% in Saskatchewan.

What do these figures mean relative to effectiveness? We suggest it may reflect different provincial attitudes towards providers. Saskatchewan and New Brunswick have a higher percentage claims prepared by providers in machine readable form. Increasing the level of machine-readible input would improve the effectiveness of Nova Scotia's claims edit process.

We consider the claims handling to be less efficient as well as less effective than some other provinces.

In Saskatchewan, where more than twice as many medicare services are processed the efficiency is much higher.

In Nova Scotia, coding and control of medicare claims requires about 17 staff and data entry about 29 staff. In Saskatchewan, where a higher proportion of claims are received on diskette, there are only 13 coding staff and 30 data entry staff, seven of whom are part-time.

Manual coding and data entry are both labour intensive and could be done more efficiently if more claims were received on diskette. The computer edits would result in fewer errors from diskette claims, thus reducing the cost of resolving claims' errors and the resulting manual assessment.

3. Assessment

Assessment includes:

- Manual assessment.
- Computerized assessment.

The method of computer editing claims against assessment rules is very similar in all provinces, but the effectiveness is dependent on the assessment rules established by the tariff negotiations and the policies of the particular plans.

Assessment rules cause about 7.7% of claims to be rejected by the computer system in Nova Scotia. The figure is 4.1% in Saskatchewan, 3.5% in Manitoba and 4.5% in New Brunswick. In Saskatchewan, however, the number of claims requiring manual assessment may be 10-15% of total claims. If we add the dental claims which are assessed manually to the claims rejected by the computer edit, then we get an estimate and 11.9% of total MSI claims are assessed manually. That is within the same range as Saskatchewan.

Manual Assessment of medicare claims occupies 29 staff here but only 26 in Saskatchewan.

Staff in these other provinces believe their assessment rules are no less complete than Nova Scotia. Provinces such as Saskatchewan point out that out-of-province claims for their provinces residents go through the same assessment edit. This suggests the assessment processes must be similar.

The dental claims assessment in particular should be computerized. Computerizing more of the assessment process would require, in some cases, more concise rules for assessment to be laid down. This would reduce the number of seemingly subjective decisions on the part of the health care plan administrator.

The one conclusion we can draw from these comparative figures is that there is room for improvement in the effectiveness of some portion of the system to this point, whether it be the computer system, education of providers or some other element.

The MSI system has no on-line rejection handling. To resolve a rejected claim at MSI requires a large volume of paper to be printed, claims cards to be pulled, data to be re-keyed and manual assessment of the claim in error, even though all other services on the claim are without error. Nova Scotia is the only province without an on-line rejection handling process. We judge this as inefficient.

4. Audit

The primary purpose of the audit function is to confirm that the services for which the provider is claiming payment has actually been delivered. Secondly, in the view of other provinces (Saskatchewan and Manitoba), the audit process has a deterrent effect because providers know there is an audit function.

In Manitoba, where the system provides a more extensive statement including the cost of all incurred services over a specified time interval, the weekly audit helps educate the public on the cost of health care.

For MSI, audit includes:

- Verifying via the weekly audit that patients have received claimed services.
- Reviewing the practice of each provider against his/her peer groups.
- Reviewing patient utilization of services

a) Weekly audit

We might assess the effectiveness of MMC's weekly audit process using three measures.

In 1987/88 the weekly audit of claims recovered about $13,000, a mere .006% of medical claims value. Since the cost in postage alone was over $40,000, this is not very effective. The effectiveness as a deterrent is difficult to judge. But as we suggest below, we believe a more thorough practice profile analysis would be more effective.

We believe the Manitoba-style Notification of Benefits Paid would be more effective than the limited positive audit mailing done by MMC. Manitoba selects the same 1% random sample of beneficiaries each week. It then processes the entire claims file for some designated period, say 1-2 months, and prepares a statement of all claims, received regardless of provider, complete with the cost of the claims.

b) Practice profiles

The practice profile groups doctors into peer groups and highlights doctors whose payments are higher than the majority of their peers. MMC audit staff then analyzes those practices which fall outside the norm and report them to HSIC if necessary.

In our view, this process falls into a grey area in the policy/ administration continuum. To the extent that practice profile analysis highlights claiming processes that are inconsistent with tariff schedules and regulations, it is an audit technique.

More thorough practice profile analysis such as used in Manitoba tends to move the process from the audit function to practice management review which, we believe, falls in a broader health care policy arena.

As an audit tool, MMC's technique of assembling physician profiles by agreed peer groups with a calculated patient service index (PSI) may be adequate.

We are of the strong opinion that the use of practice profile analysis can be strengthened considerably. But we believe it should be primarily a tool for those concerned with policy, broader management of health care costs and in conjunction with a strong Peer Review process.

In the course of our review, some interviewees suggested MMC is being more aggressive at auditing pharmacists than physicians. We found no evidence that MMC was being lenient towards physicians. We understand the frequency of on-site audits of the pharmacists is defined by HSIC. Although the costs of auditing the pharmacare plan are higher than other plans, this is understandable due to the external audit. The cost of external pharmacy audits made up more than 1/3 of the total audit costs in 1987/88 for all plans. Other audit procedures used for the drug programme seem appropriate. It would appear past disagreements could have been reduced by advanced communication on planned audit procedures between MMC and HSIC.

B. HOW THE ARRANGEMENT FARES

1. The Biggest Factor Impacting Efficiency and Effectiveness is the Information System.

In Section VI A we gave the MMC administration component of the arrangement a mixed grade with respect to efficiency and effectiveness. The standards we used for evaluation were a combination of the administrative processes in the other provinces we examined and our professional judgement.

Information systems play a major role in the operation of most insurance companies. The quality of the computer-based systems is a vital factor in the performance

of insurance companies in the market place. Companies with low cost ratios will usually give a fair share of the credit to systems.

The biggest factor impacting the efficiency and effectiveness of the current administration is the information system. This is particularly true in four areas, data entry and edit, claims assessment and practice profiling and on-line assessment of data for research purposes.

Operationally, both MMC and the SCS have a reasonable relationship. But from a systems development perspective the current arrangement is a severe constraint. According to the agreement, the system must reside at the province's data centre which implies either explicitly or implicitly that the Systems & Computer Services Group must be involved in systems development and the resources are allocated in competition with other government departments, subject to resource availability and priorities established by the government infrastructure.

Until this systems development environment can be streamlined, the efficiency of the administrative process (and the usefulness of the system in research and broader health care cost management) will be less than optimal.

The terms of reference for this study specifically asked "Does the current arrangement limit HSIC's direct access to, and its ability to do timely research on, the MSI data?"

In our opinion, the arrangement itself does not limit HSIC. But, at the present time, MMC has the only resources capable of getting at the data for research purposes. For one reason the system is not "user-friendly" when it comes to the kind of analysis HSIC might wish to perform. Secondly, HSIC has not had the budget to develop its own research capabilities.

The manpower issue has recently been addressed in a modest way by giving HSIC a research person. While this person may eventually be able to use the system directly, the system has technical limitations compared to that in other provinces.

2. HSIC's Policy Role in the Arrangement Deserves More Emphasis

Over the years the government has relied relatively heavily on MMC for advice in policy-related areas. For example, when each new program was being implemented, MMC was called on to develop policy and procedure manuals. Although these were first produced in draft form for review and approval by HSIC, HSIC has not had the resources to make a substantial impact on the policy. The MMC Research and Statistics Section continues to be called on to prepare research papers on matters that relate more to policy than to current administrative procedures.

At present, practice profile reviews and utilization studies tend to be done in an audit context. Profiling and utilization studies are used to highlight providers or

beneficiaries that appear to be misusing the insured service system rather than identifying practice patterns that, while being "legal", tend to be more costly than desirable to the province's plan.

Hence, we believe, in an adjusted arrangement, the research function should be taken outside of MMC and enhanced to focus more on analysis related to the challenge of delivering the appropriate quality of care balanced with management of the cost of health care. It is not clear to us that this changed research function should reside within HSIC. In fact, it would seem more appropriate for it to be within the Department of Health which has a broader mandate than HSIC.

Many of the activities such a profiling for audit purposes and assembling statistical reports will still be required within MMC. But, in our mind, this should not be labelled as "research". Rather, it is more like an analysis function in support of the administrative process.

3. Some Restructuring of the MMC Board Might Alleviate Concern Over Apparent Conflict of Interest.

In the terms of reference to this study we were asked to address the question "Should a private corporation owned by a medical society be responsible for conducting analyses on a medical plan which funds the physicians of this province?"

Before addressing the question, explicitly, some elaboration on the situation may be useful.

Maritime Medical Care Inc. was originally set up by the Medical Society as administrator of a province-wide insurance plan. Its origin is not unlike most other not-for-profit medical insurance companies such as Blue Cross. No individual (physician) owns shares. Hence, no individual (physician) will receive dividends or any similar direct financial benefit from MMC. There is no provision for individuals or the Medical Society to receive direct financial benefits.

A secondary question that has been asked is the possibility of the MMC Board of Directors in some way influencing the processing of claims to the benefit of physicians over the province. We have examined the Board Minutes for the last two years and have found no reference of any kind to the processing of MSI claims. At one time the Medical Review Committee reported to the MMC Board. This was changed effective March 1988 so that the Committee now reports to the Program Audit Committee of HSIC. While a report of the Medical Review Committee is included in the background papers made available to the MMC Board, we see no reference of discussion, let alone evidence, of an attempt to impact the work.

We have interviewed MMC's Medical Consultant, senior staff in the Audit Section and the Medical Consultant at the Department of Health who was previously at MMC. We have examined "case studies" of the work of the audit section and the MMC

Medical Consultant and conclude there is no bias in the work that might in any way be attributed to MMC's supposed relationship with the Medical Society.

In March 1981 Benefit Services Corporation Limited was registered as a wholly-owned subsidiary of MMC. This was done so that MMC could offer its private customers a complete insurance package including life and disability insurance. Benefit Services Corporation is now properly licensed as an insurance broker with licensed agents to sell life and disability insurance underwritten by Crown Life.

MMC, itself, could not do this. Under its charter it is a not-for-profit company exempt from premium and income tax. The federal Medical Care Act requires that the provincial medical care insurance plan be administered on a non-profit basis by a public authority. MMC did not want to jeopardize its not-for-profit status by attempting to change its articles of incorporation.

Benefit Services Corp. is not restricted from making a profit. If and when a net profit is made it will flow to its parent, MMC, to add to its policy reserves. Assets, like the new MMC head office, are owned by Benefit Services Corp. and will result in a capital cost allowance expense for income tax purposes. The funds to build the new building came from MMC at an interest rate of 11.5%.

Other not-for-profit medical care insurance companies, such as Blue Cross of Atlantic Canada, have similar set-ups.

Are there elements of this transaction that have some relevance to the conflict of interest question?

MMC management point out that all insurance companies, whether for profit or not-for-profit must keep reserves against future potential claims. MMC like every other company, invests these reserves in a variety of investment instruments including real estate. MMC have chosen to invest some of its reserves in the new head office building.

The most relevant issue here, in the potential conflict of interest context, seems to be whether the rental for space charged to MSI is inflated in comparison to the going market rate.

The space rental cost has been discussed earlier in this report. We have concluded that the rental rate per square foot is consistent with the local market. Our research suggests the quantity of space for clerical staff is less than established Nova Scotia standards, for middle management is comparable with other government departments and for senior management exceeds government standards. While this could be the subject for further discussion between HSIC and MMC, we do not believe it qualifies as strong evidence of conflict of interest in the arrangement.

A second issue is the possibility that some proceeds from excess MSI administrative charges flows to MMC private business. In this way MMC is "profiting" directly from MSI administration. The basis of distribution of expenses between the public

and private sides of MMC business has been discussed extensively earlier in this report. Where resources are shared the allocation of expenses is audited by the Auditor General's office. We have also examined the effectiveness and efficiency of a number of the major administrative functions and have given our observations.

According to current MMC by-laws, seven of the thirteen directors must be physicians. The by-laws also specifies that the Chairman of the Board must be a physician and a director of MMC. While our review found no indication that the Board made any attempt to influence the conduct of MSI business, these clauses in the by-laws contribute to the suspicion by some observers that there is the potential for influence and therefore a potential for conflict of interest. MMC management has indicated a willingness to consider appropriate changes in these clauses. Such changes would bring MMC into line with Blue Cross of Atlantic Canada and other not-for-profit institutions.

4. Abandoning the Basic Relationship With MMC Is Not A Priority

A basic question that might be considered as one assesses the arrangement between HSIC and MMC is whether the administration of the insured programs can be carried out more efficiently and effectively with some other contractual arrangement. The two main alternatives that might be considered are tendering the contract to some other organization such as Blue Cross of Atlantic Canada or Green Shield or rolling the administration into HSIC or the Department of Health.

According to the federal Medical Care Act, health insurance programs to which the federal government contribute funds must be administered by a not-for-profit organization. We understand that MMC is the only not-for-profit organization in Canada currently administering a physician services insurance program. Hence, while other companies might be able to demonstrate current capability to administer a drug program they would not be able to demonstrate capability in physician services, the major part of the province's insurance program. Should this issue be resolved, a second issue would be the supporting information system. We have already commented that the province's system is due for major upgrading. Would another administrator agree to take on the contract at a lower cost using the province's existing system? Or would the province allow the firm to develop and use its own information system, an alternative that would perhaps give the company some economy of scale advantages but tie the province to that firm on a longer term basis. A number of other significant issues, such as the need to more clearly define deliverables so a tender can be issued and the subsequent contract effectively administered, would mean the tendering option results in a very significant level of effort for the province. We do not see this as a viable alternative for the physician services program at least.

The second potential option is to roll the administrative function in-house. On the surface this might result in the following cost savings.

Based on the 1987/88 figures about $315,000 in savings may have been realized if MSI had been administered by the Department of Health directly:

a) Eliminating redundant senior executive salaries and benefits -- about $175,000.

b) Eliminating MSI allocation of Directors' fees, committee expenses and meeting expenses -- about $70,000.

c) Reducing research and statistics staff of 4 to 3 staff within Department of Health statistics group -- about $30,000.

d) Eliminating cafeteria costs allocated to MSI -- about $40,000.

Based on the new building office space costs (1988/89 figures), an additional savings of about $200,000 could be possible with a smaller amount of space per employee, at the normal Halifax rates for space.

The above assumes that the staffing levels at the lower and middle levels would continue to be sufficient in the public sector environment. If this transfer of responsibility were done, would the experience be transferred from MMC or would there be a learning curve for new, experienced staff.

C. CONCLUSIONS & RECOMMENDATIONS

While the effectiveness and efficiency of MMC's administration of MSI can be improved, the main improvements will come from up-grading systems particularly in the data capturing and claims assessment/processing areas.

The approaches used by the four other provinces reviewed in the course of this study provide useful models Nova Scotia: Saskatchewan's on-line Pharmacare system and moderate success in getting provider claims in machine-readable form, Manitoba's extensive practice profile analysis and reporting system and use of Peer Review, New Brunswick's use of combined scanning/microfilming technology and all provinces' on-line access to claims data.

We have found no evidence that the Medical Society's relationship with MMC has a negative impact on the administrative process or that there is a conflict of interest situation.

In our view, tendering of the administrative function is not a productive option at this time. While some cost savings might be realized by bringing the administrative function within the government organizational structure, either within HSIC or the Department of Health, it is not clear to us that either of these entities are equipped to manage such a significant number of staff. The risk is that the costs would actually increase by moving this from the private to the public sector. Of course, this would only be known after the fact when it is too late to reverse the process.

While the federal government requirement that the program be administered by a not-for-profit organization means the no profit-no loss element of the arrangement probably must remain, HSIC might consider establishing meaningful performance indicators to help its supervisory process. However, this will probably be difficult given the present tension between senior levels of HSIC and MMC.

The practice profile analysis and reporting aspect of the arrangement should be greatly enhanced. This should be considered as a policy initiative and not an expansion of MMC's audit function. In fact, we suggest that when a supporting information system is developed for this function it can feed and enhance MMC's audit function. The analytical and research resources supporting this activity should reside outside of MMC. Combining it with the existing Department of Health research function would make a system-wide approach to health care cost analysis and policy review easier. Some reduced analytical resources will still be required within MMC. HSIC may also require an analyst to give HSIC more flexibility in doing research specific to its supervisory and negotiating roles.

APPENDIX A

ESTIMATES OF ADMINISTRATIVE EXPENSES BY PLAN

APPENDIX A

ESTIMATES OF ADMINISTRATIVE EXPENSES BY PLAN

Administrative expenses by department - MSI expenses only

Services by plan	Services	Percentage
Medical	6,841,568	66.1%
Optometric	129,176	1.2%
Dental Surgical	32,722	0.3%
Children'sdental	516,909	5.0%
MSI Pharmacare	2,453,975	23.7%
SA Pharmacare	379,316	3.7%
Total services	10,353,666	100.0%

Code & control, Microfilm admin. expenses $849,637

Assume expenses in same proportion as services

	Percentage	Expenses
Medical	66.1%	$561,429
Optometric	1.2%	$10,600
Dental Surgical	0.3%	$2,685
Children'sdental	5.0%	$42,418
MSI Pharmacare	23.7%	$201,377
SA Pharmacare	3.7%	$31,127
Total	100.0%	$849,637

Medical assessment dept. admin. expenses $794,877

Assume all expenses are medical

	Percentage	Expenses
Medical	100.0%	$794,877
Optometric	0.0%	$0
Dental Surgical	0.0%	$0
Children'sdental	0.0%	$0
MSI Pharmacare	0.0%	$0
SA Pharmacare	0.0%	$0
Total	100.0%	$794,877

Dental assessment dept. admin. expenses $122,714

Assume expenses are proportional to dental services

Dental Surgical	32,722	6.0%
Children'sdental	516,909	94.0%
Total dental services	549,631	100.0%

	Percentage	Expenses
Medical	0.0%	$0
Optometric	0.0%	$0
Dental Surgical	6.0%	$7,306
Children'sdental	94.0%	$115,408
MSI Pharmacare	0.0%	$0
SA Pharmacare	0.0%	$0
Total	100.0%	$122,714

Research & statistics dept. admin. expenses $269,812

Assume expenses in same proportion as services

	Percentage	Expenses
Medical	66.1%	$178,288
Optometric	1.2%	$3,366
Dental Surgical	0.3%	$853
Children'sdental	5.0%	$13,470
MSI Pharmacare	23.7%	$63,950
SA Pharmacare	3.7%	$9,885
Total	100.0%	$269,812

Public Management dept. admin. expenses $716,770

Assume all expenses are for Medicare.

	Percentage	Expenses
Medical	100.0%	$716,770
Optometric	0.0%	$0
Dental Surgical	0.0%	$0
Children'sdental	0.0%	$0
MSI Pharmacare	0.0%	$0
SA Pharmacare	0.0%	$0
Total	100.0%	$716,770

Info Offices dept. admin. expenses $256,660

Assume expenses in same proportion as services

	Percentage	Expenses
Medical	66.1%	$169,598
Optometric	1.2%	$3,202
Dental Surgical	0.3%	$811
Children'sdental	5.0%	$12,814
MSI Pharmacare	23.7%	$60,832
SA Pharmacare	3.7%	$9,403
Total	100.0%	$256,660

MSI Pharmacare dept. admin. expenses $398,833

Assume expenses are proportional to Pharmacare services

MSI Pharmacare	2,453,975	86.6%
SA Pharmacare	379,316	13.4%
Total services	2,833,291	100.0%

	Percentage	Expenses
Medical	0.0%	$0
Optometric	0.0%	$0
Dental Surgical	0.0%	$0
Children'sdental	0.0%	$0

MSI Pharmacare	86.6%	$345,438
SA Pharmacare	13.4%	$53,395
Total	100.0%	$398,833

Data entry dept. admin. expenses $1,360,003

Assume expenses proportional to keystrokes

	Services	KS/service	KS (000's)	% of total
Medical	5,131,176	62	318,133	59.9%
Optometric	129,176	62	8,009	1.5%
Dental Surgical	32,722	64	2,094	0.4%
Children'sdental	516,909	64	33,082	6.2%
MSI Pharmacare	1,717,783	81	139,140	26.2%
SA Pharmacare	379,316	81	30,725	5.8%
Total	10,353,666		531,183	100.0%

	Percentage	Expenses
Medical	59.9%	$814,524
Optometric	1.5%	$20,505
Dental Surgical	0.4%	$5,362
Children'sdental	6.2%	$84,701
MSI Pharmacare	26.2%	$356,245
SA Pharmacare	5.8%	$78,665
Total	100.0%	$1,360,003

MSI Audit dept. admin. expenses $341,414

Assume internal audit of all plans required 6 of the 9 staff.	$214,685
Assume external audit of Pharmacare requires 3 of the 9 staff.	$105,740
Assume all travel expenses incurred by external audits.	$20,989
Total	$341,414

Assume internal audits require proportions of audit staff time as follows:

	Internal Percentage	Internal Expenses	External Percentage	External Expenses	Total Expenses
Medical	58.9%	$126,424	0.0%	$0	$126,424
Optometric	1.1%	$2,387	0.0%	$0	$2,387
Dental Surgical	0.3%	$639	0.0%	$0	$639
Children'sdental	4.7%	$10,095	0.0%	$0	$10,095
MSI Pharmacare	30.3%	$65,080	86.6%	$109,763	$174,843
SA Pharmacare	4.7%	$10,060	13.4%	$16,966	$27,026
Total	100.0%	$214,685	100.0%	$126,729	$341,414

Sys. Plan. & Dev. dept. admin. expenses $100,229

Assume same proportion as services

	Percentage	Expenses
Medical	66.1%	$66,230
Optometric	1.2%	$1,250
Dental Surgical	0.3%	$317

Children'sdental	5.0%	$5,004
MSI Pharmacare	23.7%	$23,756
SA Pharmacare	3.7%	$3,672
Total	100.0%	$100,229

Reg. & inquiry dept. admin. expenses $1,005,002

Assume 90000 registration changes/yr and department activity in same proportion as eligibility.

Plan	Residents	%	Updates(est)	New Reg.	Total activity
Medicare	793,000	70.5%	63,444	10,278	73,722
Denticare	213,333	19.0%	17,068	0	17,068
Pharmacare	118,603	10.5%	9,489	5,832	15,321
Total	1,124,936	100.0%	90,000	16,110	106,110

Plan	% of activity
Medicare	70.5%
Denticare	19.0%
Pharmacare	10.5%
Total	100.0%

Total registration & inquiry dept. costs	$1,005,002
Costs of providing Pharmacare cards	$20,000
Cost of registration & inquiry	$985,002

	Percentage	Reg & inq	Cards	Total exp.
Medical	70.5%	$694,356	0	$694,356
Optometric	0.0%	$0	0	$0
Dental Surgical	0.0%	$0	0	$0
Children'sdental	19.0%	$186,796	0	$186,796
MSI Pharmacare	9.1%	$89,944	20000	$109,944
SA Pharmacare	1.4%	$13,905	0	$13,905
Total	100.0%	$985,002	20000	$1,005,002

Administrative expenses by department - Shared expenses

Pharmacare Assess. dept. admin. expenses $235,748

Allocation of public/private is based on number of public/private claims.
Allocation is 83% for public plans. $195,671

	Percentage	Expenses
Medical	0.0%	$0
Optometric	0.0%	$0
Dental Surgical	0.0%	$0
Children'sdental	0.0%	$0
MSI Pharmacare	86.6%	$169,475
SA Pharmacare	13.4%	$26,196
Total	100.0%	$195,671

Accounting and Admin. services $755,523

Allocation of public/private based on proportion of total public costs to private costs.
Allocation is 83% of expenses for public plans = $627,084

Assume same proportion as services within the plans.

	Percentage	Expenses
Medical	66.1%	$414,369
Optometric	1.2%	$7,824
Dental Surgical	0.3%	$1,982
Children'sdental	5.0%	$31,307
MSI Pharmacare	23.7%	$148,628
SA Pharmacare	3.7%	$22,974
Total	100.0%	$627,084

Personnel, building, gen. mgmt. & cafeteria $1,102,091

Allocation of public/private based on numbers of employees in each.
Allocation is 88% for public plans = $969,840
Assume same prortion as services within the plans.

	Percentage	Expenses
Medical	66.1%	$640,858
Optometric	1.2%	$12,100
Dental Surgical	0.3%	$3,065
Children'sdental	5.0%	$48,419
MSI Pharmacare	23.7%	$229,867
SA Pharmacare	3.7%	$35,531
Total	100.0%	$969,840

Programming $82,261

Allocation of public/private is based on programmers' actual time spent on public and private.
Allocation is 26% for public plans = $21,388
Assume same proportion as services within the plans.

	Percentage	Expenses
Medical	66.1%	$14,133
Optometric	1.2%	$267
Dental Surgical	0.3%	$68
Children'sdental	5.0%	$1,068
MSI Pharmacare	23.7%	$5,069
SA Pharmacare	3.7%	$784
Total	100.0%	$21,388

Computer operation $202,844

Assume 5% for public plans = $10,142
Assume same proportion as services within the plans.

	Percentage	Expenses
Medical	66.1%	$6,702
Optometric	1.2%	$127
Dental Surgical	0.3%	$32
Children'sdental	5.0%	$506
MSI Pharmacare	23.7%	$2,404
SA Pharmacare	3.7%	$372
Total	100.0%	$10,142

Stevenson Kellogg Ernst & Whinney
Management Consultants

Project Report

PRACTICE PLANS AT DALHOUSIE UNIVERSITY FACULTY OF MEDICINE

Prepared for

The Nova Scotia Royal Commission on Health Care
Halifax, Nova Scotia

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I

INTRODUCTION

Of the $200 + million paid by MSI to physicians in Nova Scotia in 1988/89 some $17.3 million (8.8%) was billed by full-time faculty members (GFT's) of the Dalhousie Faculty of Medicine. An additional $40.3[1] million (20%) was billed by physicians who are part-time Halifax based faculty members. Additional hospital fees paid to pathologists and radiologists amounted to $6.7 million and $4.0 million respectively for the Halifax teaching hospitals in 1988/89. Since these faculty members receive funds from the university and some resources are also provided by the teaching hospitals, the Royal Commission wished to review the financial arrangements in place in the Faculty of Medicine. Questions raised relative to these arrangements include:

- Does the current system provide an unfair advantage to full-time faculty by providing free support services such as office space and secretarial support?

- Are there other methods of remunerating clinical faculty for their involvement in patient care that would promote improved cost containment?

To pursue answers to these questions, the Nova Scotia Royal Commission on Health Care engaged Stevenson Kellogg Ernst & Whinney to examine the practice plans in place at Dalhousie University and where possible, to compare them with those in place at other medical schools. In addition, we were asked to advise on whether these practice plans are the most appropriate means of remunerating academic physicians for their involvement in patient care.

To complete this mandate we have:

- Met with each clinical department within the Faculty of Medicine of Dalhousie University and discussed with them their financial arrangements. Some departments have formally documented practice plans, while others have partnership agreements, articles of association or other formal arrangements. These are described in this report.

- Examined Medical Service Insurance earnings of full-time and part-time physicians who hold faculty of medicine appointments and compared them to other physicians in Nova Scotia in specialty practice.

- Reviewed university hard money budget allocations by department for the past five years.

[1] *Excludes out-of-province billings. These were approximately $2 million to GFT's and $2 million to part-time faculty.*

- Examined practice plans in place at other Canadian medical schools--namely University of British Columbia, University of Manitoba, University of Toronto and University of Western Ontario.

In this report we discuss the following:

- The current system in place at Dalhousie and how it has evolved over time.
- How Dalhousie compares with other Canadian faculties of medicine.
- Strengths and weaknesses of the current arrangements at Dalhousie.
- Recommended areas for further development of practice plans.
- How MSI fees compare for full-time and part-time faculty.
- Possible alternatives for reimbursing physicians, in particular those who are full-time faculty members.

Preparation of this document was only possible because of the extremely high level of cooperation offered by the clinical department heads and the office of the Dean of Medicine. They provided comprehensive information on very short notice and were forthright in their comments.

II

HIGHLIGHTS

Dalhousie University Faculty of Medicine includes some 183 full-time faculty and approximately 230 part-time faculty in 14 clinical departments (excluding community health, epidemiology and continuing medical education). Both full and part-time faculty in each of these 14 departments generate fee-for-service earnings from their clinical activities. The majority of these fees are from MSI, but other funding sources include out-of-province services, diagnostic services (lab, radiology, EKG and others) billed through hospital budgets. Some fees are also received from third party payors such as Workers' Compensation, private insurers and the Canadian Armed Forces.

In addition to earnings for clinical services, clinical departments receive university "hard" money to support the operation of the department. These funds are used to support salaries and other operating expenses of the department.

As defined by Dalhousie, "*A practice plan is a financial arrangement controlled at the departmental level, where revenues are primarily generated from the clinical activities of department members and the distribution of these revenues is based upon principles in accordance with departmental and Faculty guidelines*" In practice, these revenue sources also include revenues from other sources such as university hard dollars, administrative stipends and some research funds.

Current arrangements at Dalhousie are the result of an evolutionary process similar to that occurring throughout Canada and the U.S. Goals of ensuring quality care, education, scholarship and research as stated at Dalhousie are standard for medical schools throughout North America. The objective of practice plans is to support these goals through generation of funds to enhance academic goals while also making faculty earnings reasonably competitive with their counterparts in private practice.

In 1981, Dalhousie Faculty of Medicine established principles within which departmental practice plans were to develop. While several departments worked diligently to comply with these guidelines, others did not. As a result, in the spring of 1989 new guidelines were adopted. These guidelines include compliance mechanisms which will ensure more consistency in future development. They require establishment of practice plans at the department level and outline certain key principles that must be followed.

Therefore, substantial refinement of current systems is now underway. At the time of our review a number of departments were either revising or developing new practice plans. Since all were different stages of development, we could not obtain consistent information for all. However, in total in 1988/89 some $2.5 million was contributed from clinical faculty earnings to the various departmental development funds. This represents a substantial contribution to enhancement of academic activities.

Our review identified a number of strengths of the current arrangements at Dalhousie. These include:

- Allows departmental flexibility to make arrangements suited to their specialty.
- Encourages individual departmental initiative and responsibility.
- Promotes recruitment of high quality people.
- Maintains competitive status (in some departments) with private practice and with other faculties of medicine.
- Provides funds otherwise not available to support academic goals.

However the current arrangements also include a number of weaknesses. These include:

- Increased reliance on fee-for-service funding can lead to insecurity and may threaten academic and research activities.
- In some departments incomes of full-time faculty are significantly less than those of part-time faculty.
- The system does not guarantee sufficient resources to develop necessary subspecialists.
- Complexity and variability of arrangements can lead to inequities and suspicions.
- Not all departments provide adequate support for academic activities.
- Arrangements in some departments are not competitive with other faculties, producing recruitment problems.
- Lack of security makes planning difficult.
- Lack of ability to reward outstanding achievement.
- Effective joint manpower planning between the university and teaching hospitals has not occurred.

In our view, on balance, further development of the existing system within faculty guidelines will best meet the needs of both Dalhousie Faculty of Medicine and the Province of Nova Scotia. Given a fee-for-service system it would be inappropriate to single out full-time faculty for payment by salary. Unless faculty supported the change to a salary system the result would be loss of faculty, loss of faculty time now contributed freely to hospital

activities, loss of the flexibility to hire investigators to seek answers to medical questions and loss of funds for academic enrichment. Finally, it would place Dalhousie at a disadvantage in recruitment relative to other medical schools in North America.

Although we do not recommend radical changes, we have suggested a number of refinements to the current status at Dalhousie. All teaching hospitals should be applying similar rules concerning changes to clinical faculty. Open income levels should be eliminated in all departments and hard or soft ceilings adopted. Provision of salaries should be explored in departments where this is appropriate. Direct and indirect expenses should be treated consistently in all departments. Treatment of overage should be more consistent between departments.

And finally, part-time faculty should be more involved in practice plans in all departments.

III

CHARACTERISTICS OF DALHOUSIE FACULTY OF MEDICINE PRACTICE PLANS

In this chapter we describe the historical evolution of the financial arrangements in place in the clinical departments of the Faculty of Medicine.

A. THE CURRENT ARRANGEMENTS HAVE EVOLVED OVER TIME

1. The Evolution of Practice Plans in Canadian Medical Schools

Practice plans emerged in the 1960's and 1970's as a natural evolution of the geographical full-time (GFT) arrangements that were being established in medical schools throughout Canada. In fact similar arrangements have developed in most jurisdictions in North America. In most instances, practice plans emerged at "arm's length" from the university and the teaching hospitals; yet they were meant to ensure that the Faculty would be accountable for protecting the time of full-time clinical teachers to pursue objectives in quality care, education, scholarship, and research. Thus, clinical earnings were meant to supplement the basic salaries of GFT faculty to permit compensation at a level comparable to colleagues in private practice, while allowing pursuit of faculty objectives. It was also deemed appropriate to use clinical earnings to support clinical activities. While the "earnings" remained in the hands of the partnerships, the Faculty which established the guidelines was accountable.

2. The Evolution of Practice Plans at Dalhousie

Dalhousie Faculty of Medicine established the "Principles Applicable to Departmental Practice Plans" (Appendix A) in 1981. Practice plans had, however, been in place in a number of departments prior to that time. The stimulus for establishing a set of principles in 1981 was a recognized need within the Faculty to develop consistency between departments and to ensure that practice plan funds were being used for academic development. The 1981 document identified the principles and processes underlying:

- Full and part-time appointments.
- Remuneration.
- Modification of the principles.
- Guidelines for cost-sharing of offices and secretarial support services for academic staff in university affiliated hospitals. (These cost-sharing principles were approved by the Council of Teaching Hospitals (COTH) in 1982).

While the principles underlying practice plans were developed at the faculty-level, the plans themselves have been developed and administered at the departmental level. The Dean believes this system supports academic development and encourages commitment within the departments. Yet, the degree to which departments have developed practice plans that are consistent with the principles varies. Some departments have well-developed plans, while others do not yet have plans. Among these are departments in which members are assessed an amount to be contributed to departmental development funds used for academic enrichment. (The latter group includes the single department in the faculty that has yet to develop a plan of any sort. The head of this department is currently working toward implementing a practice plan.)

Notwithstanding the above, significant progress has been made over the past couple of years in the development of new plans in departments that previously had none. Others have been strengthened, primarily by bringing them into compliance with more of the "principles." This has been accomplished through the cooperative efforts of these departments and the Dean's office. Many of the improvements were made in recognition of the increasing importance of practice plans in supporting academic development. And, department heads agreed that it was unfair and unacceptable that some departments were conforming to faculty guidelines, while others were not.

While these improvements were taking place, a committee of department heads (rather than the Dean, who has encouraged his department heads to take a strong leadership role in this area) was working on a new document to replace the 1981 "principles". Several aspects of the earlier document were strengthened to improve accountability. The new guidelines and principles received approval from the clinical department heads in the spring of this year. This document is now before COTH. The Dean expects it will be expanded to reflect the concerns of the teaching hospitals with respect to their relationships and responsibilities to the Faculty of Medicine.

Although hospitals in Halifax have interpreted the cost-sharing arrangements somewhat differently, the principle was that secretarial salaries for GFT's be shared equally between the university, the hospital and clinical practice (i.e. the 1/3, 1/3, 1/3 agreement). Cost sharing for secretaries to hospital and university department heads was to be on a 50:50 basis unless the university head of a department was not the head of the hospital department, in which case the university was to pay 100% of the salary.

As the practice plans evolve at Dalhousie, the Dean's goals are to ensure that all departments have a plan in place, that these are operating and, over time, to increase consistency within the faculty while maintaining accountability.

IV

PRACTICE PLANS VARY BETWEEN DEPARTMENTS

This chapter outlines the characteristics of the financial arrangements in place in each clinical department. These arrangements have been in place for varying periods of time and were developed under different circumstances. All were developed at the departmental level.

At the conclusion of this chapter, we also summarize the number of full-time clinical faculty by department for 1985/86 and 1989/90 as well as the distribution of departmental earnings (exhibits IV-1 and IV-2).

1. Anaesthesia

a) Overview

The anaesthesia department includes full and part-time members based in Halifax teaching hospitals, CFB Stadacona and Saint John, N.B. Each hospital group has its own partnership agreement, except the Victoria General Hospital and Grace Maternity which are served by the same partnership. All professional fee-for-service earnings of fellows are deposited in the clinical earnings fund of the department. Otherwise, the terms and conditions of individual letters of contract or memoranda of agreement apply (i.e. pooled in partnership earnings).

b) Manpower

	84/85[1]	89/90
Full-time faculty	10	6
Part-time faculty	5.9 FTE	38
Residents	24	24 (includes 4 not funded by Department of Health)

[1] *Source: TSK report*

c) Basis of Plan

- All members of the department of anaesthesia participate in the department's practice plan.

- The basic principle underlying the plan is that the funding of academic responsibilities must be the responsibility of the university and the department of education. It cannot be the responsibility of clinical practitioners to subsidize academic activities from clinical earnings unless they wish to do so.

- In general, the department negotiates with the Dean, for payment to GFT's for designated and committed blocks of time in either hours or days per week to be spent in academic pursuits, defined in individual contracts. The specific academic expectations of part-time faculty are also clearly defined in their contracts, with university remuneration based upon this activity in the same way as for GFT's. All appointments, contracts and memoranda of agreement are approved by the Dean.

- In establishing salaries, the department recognizes that there is a certain market value for physicians who teach and do research as well as clinical work. The department uses the median income of an anaesthetist in Nova Scotia and Medical Research Council guidelines for salaries in negotiating university salaries for academic activities. The department encourages those interested in research to focus on research, those who like teaching to teach, and those with a focus on clinical activity to spend a higher proportion of their time in clinical work. This guarantees protected time for teaching and research in the department.

- The incentive to the plan is simple--payment is geared to productivity. In the event that any member of staff is non-productive, their earnings, from whatever source diminish. When fellows and other specific appointees generate earnings in excess of established salaries, surpluses are allocated according to terms defined for each member in their contract or memorandum of agreement with the department (i.e. a certain negotiated percentage of the overage goes to the member, with the balance reverting to the department's development fund to support the academic growth and development of the department. If clinical earnings are less than targeted and they do not equal salary commitments, the earnings of the individual fall below target.

d) Disclosure and compliance

- Both personal income declarations and audited statements of partnerships are monitored by the department head on request.

e) Contributions to research and development funds

- All professional fee-for-service earnings of fellows are deposited in the clinical earnings fund of the department. Otherwise, the terms and conditions of individual letters of contract or memoranda of agreement apply. (i.e..--pooled in partnership earnings)

- Fees generated by fellows are first allocated to cover the following expenses:

  - Medical Society licensing fees.
  - Canadian Medical Protective Association (CMPA) dues.
  - Royal College dues.
  - Expenses incurred while attending meetings, CME, conventions and seminars.
  - Salary and fringe benefit costs.
  - Annual car allowance if applicable.

- Overages not distributed to individual fellows are retained in the development funds of each hospital group to be used for the academic improvement of the department.

- Voluntary contributions are also made to the university development fund. This is the predominant route for part-time members of the department.

- Honoraria income considered not to be connected with either the university or hospital appointment is excluded from the plan. Honoraria income is minimal.

f) External resources

i) Resources provided by Dalhousie:

- The majority of the university budget is committed to secretarial and GFT salaries and fringe benefits with a very small amount for general expenses associated with operating the department. Increasingly, development fund monies have had to be used to pay for departmental operating costs to make up for deficiencies in both hospital and university budgets.

- The university pays benefits on the hard portion of GFT salaries. Most GFT's supplement these benefits.

- Secretarial staff salaries are cost shared between the university and the hospitals on a 50:50 basis.

ii) Resources provided by the hospitals:

- Hospitals provide minimal space for administrative and secretarial functions.

- Space and staff for billing functions are paid by the partnership completely. The Izaak Walton Killam Hospital (IWK), Camp Hill Medical Centre and probably the VGH (department head is not certain if a previous agreement is still in effect) contribute to the hospital department head salary. The Grace Maternity Hospital does not.

g) Funding

MSI income generated by GFT's in 1988/89 totalled $755,422. Of this amount, $157,537 was recovered by the university to support GFT salaries. The university hard money totalled $466,658 of which $240,635 was GFT salary support. Contributions to the various development funds for 1988 totalled $123,791. These funds were used to support resident faculty travel, equipment purchase, faculty research, visiting lecturers, purchase supplies, materials and other general operating expenses of the department.

2. Family Medicine

a) Overview

Like other departments the department of family medicine operates out of hospital facilities such as the Halifax Infirmary, Camp Hill and Grace Maternity but the department's prime base is in its two ambulatory care facilities located outside hospitals--one on Fenwick Street (where the department head is accommodated) and one in Cowie Hill. Both these facilities provide teaching experience and are staffed almost totally by full-time faculty who are members of the practice plan.

b) Manpower

	84/85[1]	89/90
Full-time faculty	10	11
Part-time faculty	5.7	16
Residents	17	17

[1] *Source: TSK report*

c) Basis of Plan

- The practice plan includes all clinical full-time members of the department who are considered 100%. Part-time members of the department are not included except in individual circumstances by specific agreement.

- Income sources of the practice plan include all professional earnings related to family medicine including fee-for-service, hospital salaries, university salaries, honoraria, royalties and other earnings resulting from teaching or medical activities unrelated to provision of patient care. Only non-professional incomes, such as investment income, are excluded.

- Remuneration is primarily salary with some incentive built in. Approximately 50% of salary costs are funded by the university according to scales by rank and seniority. The other 50% comes from clinical earnings. The incentive relates only to clinical service (i.e. no incentive for teaching and research). 6.5% of clinical earnings are reserved as a safety margin with proceeds distributed equally to full-time members of the department, if earned, on a quarterly basis.

d) Disclosure and compliance

- The department head does not see income tax returns. Compliance is ensured by the department head's having first hand knowledge of activities in a small department.

e) Contributions to research and development funds

- 65% of clinical earnings are contributed and can be used for faculty travel up to $2000 for conferences, sabbaticals and research.

f) External resources

i) Resources provided by Dalhousie:

- Part of space and other overhead at Cowie Hill and Fenwick locations is provided by Dalhousie.

- Salary support as discussed above.

ii) Resources provided by hospitals:

- The Halifax Infirmary pays 80% of overhead costs of Halifax Infirmary clinics. The practice plan pays the remaining 20%.

- Salary support is provided by Halifax hospitals for three members of the department with hospital administrative responsibilities.

- Office space is provided in three hospitals.

g) Funding

MSI income generated by GFT's and through teaching units by part-time faculty totalled approximately $605,000 in 1988/89. University hard money added an additional amount of some $468,000 for a total operating budget excluding honoraria and other miscellaneous income (these totalled less than $20,000) of approximately $1,073,000. From the clinical earnings in 1988/89, some $45,000 was allocated to the research and development fund. This comprised approximately 50% of the total income to the research and development fund. Expenditures from the fund were distributed approximately as follows:

Faculty and resident travel and sabbatical support	35%
Staff continuing education	5%

Payments to part-time staff	5%
Miscellaneous	55%

3. Medicine

a) Overview

The department of medicine is the largest in the faculty of medicine and includes 13 divisions, as follows:

cardiology	hematology
dermatology	infectious diseases
endocrinology	nephrology
gastroenterology	neurology
general medicine	physical medicine and rehabilitation
geriatric medicine	rheumatology
respirology	

This department has a number of faculty who have part-time university appointments but are full-time hospital based.

b) Manpower

	84/85[1]	89/90
Full-time faculty	50	54[2]
Part-time faculty	14.9	35
Residents	58	60[3]
Fellows	5	3

[1]*Source: TSK report*

[2]*Excludes three PhD's who do not earn MSI fees and two faculty who spend a major portion of their time on administrative duties in the dean's office. Includes researchers with major external grant funding and the head of the department.*

[3]*Includes 10 funded by other sources.*

c) Basis of plan

As noted above, the Department of Medicine consists of 13 divisions. In addition, the department is organized into three administrative hospital departments--Victoria General Hospital, Camp Hill Medical Centre (recently combined Halifax Infirmary and Camp Hill Hospitals) and Nova Scotia Rehabilitation Centre. Each hospital department has a hospital department head with responsibility for carrying out exemplary patient care and academic programs in his/her hospital. Each division has a division head with responsibility for administration of clinical and academic activities within his/her subspecialty.

All department members, both full-time and part-time are included in the practice plan.

For full-time members of the department all clinical earnings are included in the plan. For part-time members only those earnings related to their work on "hospital patients" is included. This varies substantially from member to member.

Remuneration of both full-time and part-time faculty is based on a points formula system that began in 1983. Points are awarded to individual faculty members on the basis of 8 categories:

- Automatic allocation.
- Years of service.
- Academic rank.
- Administration.
- Educational activities.
- Research.
- Clinical earnings.
- Other activities (i.e.. National Societies, Granting Agencies).

University part-time physicians who are 100% hospital-based have the same point system as university full-time physicians. Part-time faculty receive the same points for administration, education, research, clinical earnings from department patients and other activities as full-time physicians. Automatic point and points awarded for academic work and years of service are totalled and fractioned based on an agreed upon equivalent to a full-time faculty member (i.e.. 50%, 75%). Individuals who spend less than 50% of their time with the department are not included in the points system. These

members are paid an honorarium (maximum $3000) plus 75% of their clinical earnings generated within the department.

An annual budget is prepared and expected points used to calculate an individual's unadjusted earnings for the year. An adjustment of up to 5% (plus or minus) may be made at the discretion of the university department head to determine the member's final adjusted income. An incentive system rewards increased productivity at the divisional level. Divisions retain 50% of "excess" clinical earnings after adjustments for fee code increases. Distribution of this overage can then be allocated to salaries, library resources, computers, etc. The remainder of the "excess" goes to the department and maybe allocated as a department-wide bonus based on merit (academic, clinical, administrative, research).

d) Disclosure and compliance

Earnings billed through UIMC are disclosed by virtue of one collection source and the department's system of distributing income. Therefore, earnings of full-time members and earnings of part-time members through UIMC are known. Private fee-for-service earnings for part-time members are not disclosed.

e) Contributions to research and development fund

The department has established a foundation called the University Internal Medicine Research Foundation (UIMRF). The purpose of UIMRF is to make funds available to members of the department of medicine for research activities. Funds allocated to UIMRF include any surplus remaining in UIMC at the end of the calendar year after all departmental expenses have been paid. UIMRF funds can be used for the following purposes:

i) Operating grants for:

- New members who have applied to granting agencies and who are awaiting a decision from the granting agency.
- Department members whose external grant funding has been terminated and who are expecting other external funding.
- Pilot projects by members with external funding for projects not covered by external grants.
- Senior department members not holding external grants for a year or more.

ii) Grants to purchase essential research.

iii) Other grants that may include special personnel or other needs related to research.

Grant applications to UIMRF are screened by the department's research committee. In 1988 approximately $790,000 was contributed to UIMRF by UIMC. UIMRF earned another $135,000 from interest in investment income. Expenditures from UIMRF in 1988 amounted to approximately $780,000.

f) External resources

In general, office space and secretarial support is provided according to the 1/3-1/3-1/3 breakdown discussed elsewhere. This varies somewhat between hospitals.

g) Funding

In 1988/89 approximately $1.9 million in MSI earnings were allocated to the teaching unit practice of the department of medicine. An additional $2 million was provided by hard university money. This amounts to approximately $143,000 per FTE, which is distributed on average as follows:

Salaries	$ 110,000
Expenses	$ 28,000
UIMRF	$ 5,000

4. Neurosurgery

a) Overview

The neurosurgery department is comprised of full and part-time members based in Halifax teaching hospitals. All members of the department are members of the "Association of Dalhousie Neurosurgeons". This association relates solely to the practice of neurosurgery in the teaching units of the VGH and IWK Hospitals. Non-teaching, private practice income is excluded and distributed according to the terms of two partnership agreements. The department has two research and development funds to which all members contribute equally.

b) Manpower

	84/85[1]	89/90
Full-time faculty	0	1
Part-time faculty	.6	4
Residents	0	4 (one externally funded)

[1] *Source: TSK report*

c) Basis of Plan

- The purpose of the Association of Dalhousie Neurosurgeons is to facilitate the day-to-day administration of the neurosurgery department and to maintain and operate the department's development funds.
- The department head's university salary is determined by the Dean. Honoraria funds are divided equally between part-time faculty.
- No income ceilings have been established.
- Responsibility for teaching and other academic duties evolves over time.
- All department members have offices outside the hospital. Members have formed two partnerships.

d) Disclosure and compliance

- Members of the department voluntarily disclose all MSI earnings to the department head.

e) Contributions to research and development funds

- The department has two research and development funds. The largest of these is maintained at Dalhousie. The uses of this fund include:
  - Travel expenses, registration, etc., for residents to attend conventions and courses decided upon by the

Program Director. Normally the senior resident will be funded to attend two major conventions in the final year.

- Travel and other expenses by the department head, or his designate, in connection with resident eduction, for development of new surgical techniques in the department, or for participating in events related to research within the department.

- Purchase and maintenance of the departmental library and audiovisual facilities, as budgeted at the fall meeting.

- Guest lecturers and distinguished visitors--travel and other expenses, entertainment and honoraria.

- Costs of reprints or articles related to teaching and other special equipment, such as teaching aids, for which no other funding is available.

- Grants for research projects by members of the department, as well as for summer students, nursing staff or other persons designated to do research relating to the practice of neurosurgery.

- Temporary remuneration in exceptional cases for Fellows appointed to the department.

- Accounting and other fees related to departmental business.

- Equipment relating to data collection, computerization, etc., which would be used for research within the department.

- Retirement and other receptions, flowers and social occasions that are combined with educational or staff development functions, including both medical and nursing staff.

- Membership dues in medical and related groups and organizations in exceptional cases, as agreed to by the association.

- Miscellaneous and other expenditures not specifically mentioned.

- The level of contribution by each member is decided annually. Each member contributes equally. Funds are collected by the departmental secretary from each member.

- Royalties and honoraria are contributed to the development fund if they were received for work which involved more than one department member.

- Funds received by the department for participating in research would also be contributed to the development fund.

- A second fund comprised mainly of bequests is maintained at the hospital. This fund is used to purchase equipment.

- Department members other than the department head, who is the only GFT, purchase their own benefits.

f) External resources

i) Resources provided by Dalhousie:

- A small operating budget, almost completely allocated to salary and benefit expenses, is provided by the university. This includes salary for a part-time secretary.

ii) Resources provided by hospitals:

- One office is provided at the VG.

- A full-time secretary is provided by the VG. She performs work almost completely related to the clinical activities of the hospital department (booking patients, maintaining charts, etc.)

- The VG also provides a very small operating budget for the department.

g) Funding

The 1988/89 budget for neurosurgery was approximately $65,000. Of this, $55,000 was university hard money -- all for salary and fringe benefits. The remaining $10,000 was comprised of contributions to the department's development fund which is used for travel, visiting lecturers, equipment purchases, salary support for a research nurse and other development purposes. The average income for full-time faculty is not shown as there is only one GFT in this department.

5. Obstetrics and gynecology

a) Overview

The department of obstetrics and gynecology is based at the Grace Maternity Hospital with gynecological oncology based at the Victoria General and urodynamics at the Halifax Infirmary.

b) Manpower

	84/85[1]	89/90
Full-time faculty	12	9[2]
Part-time faculty	5.1	11
Residents	12	15[3]

[1] *Source: TSK report*

[2] *Excludes two PhD's.*

[3] *Includes three funded by another source.*

c) Basis of plan

Within the department of obstetrics and gynecology are two arrangements. The department of obstetrics and gynecology practice plan includes all full-time and part-time certified specialists in obstetrics and gynecology. Within this group is a sub-group comprised of all full-time members of the group known as the Women's Clinic Partnership.

Revenues to the department come from the university (31% in 1988/89), the practice plan (27%), the women's clinic partnership (36%) and miscellaneous contributions from research, hospitals, etc. (6%). All income of full-time members is funnelled through either the practice plan or the Women's Clinic Partnership. For part-time members of the department only that portion of their earnings related to teaching unit patients is billed through the department's practice plan.

Income distribution from the practice plan is based on annual salaries negotiated for each member of the department annually. All full-time members receive salaries related to seniority and responsibilities. All newly qualified full-time members of the department enter at the same salary. Honoraria for part-time members is negotiated annually according to their contribution to teaching and research.

Income after expenses of the Women's Clinic Partnership is distributed equally among all partners. Revenues to the Women's Clinic are those related to the private practice (i.e. two half-days per week) of the geographic full-time members.

d) Disclosure and compliance

Both the departmental practice plan audited statements and the Women's Clinic Partnership audited statements are disclosed to the Dean, on request. Private fee-for-service earnings of part-timers are not disclosed to the department head.

e) Contributions to research and development funds

Contributions to a development fund are not made at a fixed proportion of income but are determined from year to year based on program needs. Over the last three years a total of $260,000 has been allocated to research and development activities. These include supporting advanced training for subspecialists, travel and fees for examinations and conferences for staff, computerization and seed money for unfunded programs (i.e.. IVF, AID).

f) External resources

i) Resources provided by Dalhousie:

- Research space and equipment.
- Funds for academic, clerical and some technical staff.

ii) Resources provided by hospitals:

- Grace Maternity Hospital provides office space, secretarial support and equipment to the department free of charge for university administrative purposes. However this does not include any support for clinical practice.
- The women's clinic pays rent for its space in the Grace Maternity Hospital.
- The VG provides offices and charges are made for these.
- A small salary supplement will be paid by the Halifax Infirmary for the new gynecology department head.

g) Funding

Sources of income to the department include university hard money, MSI fees of full-time and part-time faculty flowing to the department and the Women's Clinic partnership.

In 1988, MSI income of the department of obstetrics and gynecology was approximately $1.1 million. Of this, $116,000 was used for departmental operating expenses (support staff salaries, supplies, rent, equipment, etc.) and $160,000 for research and development. The remainder was used for faculty salaries. Some $155,000 was paid to part-time faculty and $397,000 to full-time faculty. Full-time faculty earnings range between $110,000 and $166,000 with sources of funding broken down as follows:

Departmental contribution through practice plan	23%
Women's Clinic partnership	47%
University hard money	30%

6. Ophthalmology

a) Overview

The main location for the department of ophthalmology is the Halifax Infirmary, where the Nova Scotia Eye Centre provides tertiary care for Nova Scotia and the other two Maritime provinces.

b) Manpower

	84/85[1]	89/90
Full-time faculty	4	6
Part-time faculty	2.25 FTE	
Residents		12[2]

[1] *Source: TSK report*

[2] *Includes three funded by other sources.*

c) Basis of plan

Full and part-time members of the department are included in department's financial arrangement known as "ophthalmology associates". Each member of the department does their own billings for clinical practice and pays $300 per month (1989/90 rate) to the department (except cross appointments and new members for first six months). This money is used for departmental operating expenses, of which approximately 10% is allocated to research.

Within this overall departmental arrangement is a separate arrangement for hospital-based physicians. While this is presently being revised the following principles apply to the current arrangements:

- Time is controlled (two half-days per week for "office" practice.)
- 100% of income is disclosed within the group. All members have full knowledge of the arrangements.
- All fees generated from "teaching" patients are pooled.
- 80% of fees generated in private practice (2 x 1/2 days/week) are retained by individual physicians. The remainder is pooled for redistribution and for departmental expenses. This pool also pays insurance and dues for group members. All members have "floor" incomes and this fund is used to bring individual earnings up to the floor.

d) Disclosure and compliance

Full-time earnings are known to the department head. The department head reports to the Dean annually but not details of incomes. All hospital-based GFT's know details of income distribution.

e) Contributions to research and development funds

An academic enrichment fund has been established (solely supported by full-time physician's earnings). This can be used for research, travel to conferences, etc. A research fund through the Halifax Infirmary funds research fellows and related activities. These funds are obtained primarily from external resources such as pharmaceutical companies and department funds.

f) External resources

The department is provided with clinical space and equipment and office space by the hospital. Secretarial services are provided by the 1/3 1/3 1/3

arrangement. No additional departmental expenses are paid for by the university, except university salaries.

g) Funding

Each full-time and part-time member of the department contributes $300 a month to cover departmental operating expenses and development fund. Full-time members retain 80% of clinical earnings for private practice ($244,000 for five members in 1988/89). The remaining 20% of the full-time faculty's earnings is used for departmental operating expenses and development fund.

Salaries to the GFT's are therefore calculated as follows:

	Per GFT's (000's)
University share	48
80% private practice	39
teaching practice less 3600 x 5	97
TOTAL	184

7. Otolaryngology (ENT)

a) Overview

The ENT department includes full and part-time members including two PhD's based in Halifax teaching hospitals. Five members of the department with major teaching and research commitments have a partnership that pools their earnings. The remaining six clinicians with minimal responsibility for teaching or research operate outside the partnership. A practice plan for the partnership bas been set up and an academic plan is also in place. Part-time and full-time members contribute equally to the academic plan.

b) Manpower

	84/85[1]	89/90
Full-time faculty	3	3
Part-time faculty	1.2	9
Residents	8	8[2]

[1] *Source: TSK report*

[2] *Includes one position funded by Royal Navy.*

c) **Basis of plan**

- Two plans will be set up--a practice plan which includes hard university salary money and clinical earnings for the five members whose practice will be based solely at the Infirmary (i.e. no private practice office) and--an academic plan to which part-time and full-time members contribute equally (about $5000 per member). (Note that due to a shortage of office space at the Infirmary, two of the five "hospital-based" members now have offices outside the hospital, but all of their earnings are pooled with the other three members of the partnership.)

- The department allocates hard university dollars on the basis of academic rank which provides an incentive to strive for promotion.

- The five members of the practice plan may retain only 80% of their earnings. Clinical productivity may be rewarded through redistribution of a certain portion of the pooled excess earnings to those who have been very productive.

d) **Disclosure and compliance**

- Only GFT members may be required to disclose their earnings to the department head and the department head to the Dean.

e) **Contributions to research and development funds**

- For the five members of the practice plan, 80% of each individual's billings are retained by the individual with the balance retained to cover departmental operating costs (support staff, travel -- a limited amount per member, computer purchase, subsidies for research and teaching, including support for fellows receiving post residency training who will come back to the department, and other academic enhancement). As mentioned above, clinical productivity can also be rewarded through these funds.

- The academic plan, to which all members contribute, is controlled by a Finance Committee of which the department head is not a member. The funds in this plan are used to support resident courses and travel, library books, audio-visual charges for residents, visiting lecturers and other academically related costs.

- Last year, members contributed about $150,000 to the research and development fund. Contributions this year are expected to be about the same.

f) External resources

i) Resources provided by Dalhousie:

- A very small budget is provided for operating costs other than salaries and benefits.

ii) Resources provided by hospitals:

- Three offices are provided at the Halifax Infirmary. Two GFT's (including the director of the residency program) must maintain offices outside the Infirmary because no space is available in the hospital.

- One part-time member of the department has an office at the IWK for which he is charged overhead.

g) Funding

The 1988/89 budget for ENT is approximately $304,000. Of this amount approximately $208,000 is hard university money with the remainder coming from fee-for-service earnings.

Fee-for-service earnings of full-time members amounted to $570,000 in 1988/89, or $142,500 per GFT. Retention of 80% provides $114,000 per GFT. An additional $30,000 per GFT was provided from university money.

Salaries to GFT's are therefore calculated as follows (1988/89):

	Per GFT (000's)
University share	30
80% private practice	114
TOTAL	144

8. Pathology

a) Overview

The department of pathology includes MD's and PhD's based in both the Halifax teaching hospitals and in Saint John, N.B. Until January 1989 faculty

were salaried. Hence no historical overview of MSI earnings is available. A joint venture partnership, approved in February 1989, provides a new arrangement for laboratory medicine faculty located at the Victoria General Hospital and Tupper Building. This joint venture collects and distributes MSI earnings to joint venture members.

b) Manpower

	84/85[1]	89/90
Full-time faculty	6	18[2]
Part-time faculty	5.6 FTE	
Residents (funded)	17	18[3]

[1]*Source: TSK report*

[2]*Is not actual increase. Reflects change in status from civil service to GFT.*

[3]*Includes two funded by other sources.*

c) Basis of plan

- A job description is developed for each member outlining service, academic, research and administrative responsibilities.
- All professional earnings are included in the plan. (This includes MSI earnings, hospital-funded testing, research payments with professional income component, third-party billings, honoraria.) The only exclusion is professional earnings if earned on vacation. These are retained by the member.
- Salaries are determined by a point system that recognizes qualifications, experience, responsibility and academic rank. This constitutes 2/3 to 3/4 of payments. The remainder of earnings are determined on a monthly basis by activities reported monthly. Service, teaching, research, administrative and self governance activities are all recognized by points.
- Incentives are provided for service, teaching, research, administrative and self-governance activities.

- ► Each member is permitted 2 half-day sessions per week for private practice to earn MSI entrepreneurial income. 85% of entrepreneurial income is retained by the member who earns it.

- ► Defined entrepreneurial activities include:

  - Professional activity normally part of the pathology department but performed for other hospitals, institutions or provinces.

  - Consultations with other physicians at the VGH.

  - Professional work performed for the Department of National Defence (DND) and paid directly by DND.

  - Professional work carried out as consultants for referrals from other physicians in Nova Scotia and other provinces.

  - Professional work carried out for the Red Cross and other similar agencies.

  - Consultations and other contracts.

  - Payment to members from Pathological Scientific Research for work on projects.

d) Disclosure and compliance

All professional and entrepreneurial income from any source is disclosed to an executive committee (department head is a member) by notarized copy of tax return or auditor's statement. A member in breach of any provision of the agreement is subject to reduction in remuneration or sanction determined by special resolution.

e) Contributions to research and development funds

- ► Joint venture members contribute 10% of entrepreneurial income to the research and development fund.

- ► Uses of the fund include:

  - seed/bridge research funding

  - travel for academic purposes (especially residents and graduate students)

- fellows, master of science students, summer students
- visiting scientists
- books, journals, teaching and research equipment
- subsidizing academic expenses not paid by Dalhousie

► Annual contributions have been $140,000. They are now estimated to be $300,000 annually.

► Joint venture members contribute an additional 5% to the departmental general fund.

► Fringe benefit costs on the hard portion of salaries are shared by the joint venture and the university.

f) External resources

i) Resources provided by Dalhousie:

► Lab space.

► Teaching material and research report generating personnel. These are insufficient.

► Office furnishings.

► Lab technicians, equipment and supplies through grants.

ii) Resources provided by hospitals:

► Lab space, equipment, supplies, furnishings and technical and medical record staff.

► The joint venture pays for all space, equipment and personnel in technology-transfer activities.

g) Funding

The 1989/90 budget projection for the Department of Pathology is approximately $3.5 million. Of this amount approximately $700,000 is hard university money, $1 million is research grant money and the remainder of some $1.8 million is projected to come from MSI earnings through the joint venture. Of the $1.8 million anticipated from MSI, $1.5 million will be allocated to faculty remuneration and benefits

and approximately $280,000 to development funds. Average incomes of full-time members are projected to be approximately $139,000.

9. Pediatrics

a) Overview

The prime base of the department of pediatrics is at the IWK Hospital with neonatology split between the IWK and the Grace Maternity Hospital and with some full and part-time faculty in Saint John, N.B. The department includes a number of subspecialists.

b) Manpower

	84/85[1]	89/90
Full-time faculty	37	36[2]
Part-time faculty	3	21
Residents	21	16
Fellows	4	

[1] *Source: TSK report*

[2] *Includes faculty with major external research grant funding.*

c) Basis of plan

University Pediatric Associates (UPA) is a partnership of all members of the Department of Pediatrics. This agreement was made in 1969 and amended from time to time thereafter. At the present time, however, a new practice plan is almost completed. We describe both the existing partnership and proposed new arrangements where appropriate. Within the department of pediatrics is a separate group, known as UPA Grace, which has its own practice plan established in the mid 1960's. We will also describe this plan.

The key principles underlying the proposed new practice plan include the following:

- Full automatic and mandatory disclosure of all professional income of geographic full-time and full-time members to the Department Head.

- Any revision to the University Pediatric Associates Agreement take into account Department of Pediatrics policies for equitable remuneration of all its members based upon clinical work, teaching, administration, and research.

- Elimination of the difference between geographic full-time and full-time status.

- Provision of appropriate income tax benefits to all partners.

All clinical members of the department are required to be members of UPA.

Some full-time members are allowed two half-days per week for private practice. Income from the remainder (i.e. assigned patient fees) is divided as follows:

- 75% paid to the partner.

- 25% paid to the partnership

The arrangement is the same for part-time partners with respect to those patients of the partnership for which they act as attending physicians (this is defined in the agreement).

75% of payments received for interpretation of investigations go to the Departmental Fund.

There are currently no hard ceilings on income because private income is not controlled and, to date, there has also been no limit on the time available for private practice. (How many hours in two half-days?) The proposed new system due to start in 1989/90 would incorporate "soft ceilings" based on a graduated scale.

There are currently no financial incentives for academic and research activities.

Neonatologists based at the Grace Maternity Hospital have a separate arrangement. These neonatologists are salaried. 85% of the income to support their salaries is generated by the practice plan 15% is university salary money. UPA (Grace) also collects fees on behalf of consultants (IWK based specialists). 75% of this returns to the individual with the remaining 25% being divided as follows:

- 10% to departmental expenses

- 7.5% to Department of Pediatrics Development Fund.

- 7.5% to Department Development Fund (Grace).

If income to the partnership exceeds expenses the overage is distributed amongst the neonatologists based on their contribution (primarily night work). The amount available for such distribution is relatively small when staffing levels are reasonable.

d) Disclosure and compliance

Earnings are disclosed to the department head.

e) Contributions to research and development funds

After departmental operating expenses are paid (i.e. the 25% of revenues) the surplus is deposited to the department development fund. This fund can be used for travel expenses (academic purposes) visiting professors, temporary bridge money for grant-paid staff, computers and some office expenses. $650,000 has been contributed in the past five years.

The development fund of UPA (Grace) is used for similar types of activities specifically for the activities of the Grace department, but is also used to support fellows, recruiting (medical staff and a head nurse) and sending nurses to meetings. In addition, UPA (Grace) contributes excess profits to a research and development endowment fund.

f) External resources

i) Resources provided by Dalhousie:

- Research lab space, 1/3 of secretarial salaries and approximately 45% of faculty's salaries.

ii) Resources provided by hospital:

- Administrative and research space and equipment and furnishings per the COTH agreement, except that clinical earnings have in recent years been used to buy needed furniture and equipment. Secretarial staff are funded according to the 1/3 1/3 1/3 arrangement. The hospital charges UPA for the use of its billing office and individual doctors exercising their two half-days per week of private office consultation are charged rent.

g) Funding

For the fiscal year 1988/89, UPA (IWK) generated approximately $1.5 million in MSI billings plus an additional $280,000 in procedure fees (i.e. EEG, ECG, etc.). Of this total, approximately $130,000 was paid to part-time faculty and $1,150,000 to full-time faculty. This amounts to approximately $42,700 per full-time faculty member. University hard dollars of $856,700 increased this total to $74,400. Private practice earnings (75% of fees generated) were $830,000 or $30,700 per GFT.

The balance of the income of the department is allocated to operating expenses and the development fund. These totalled $377,000 and $183,000 respectively. Expenditures from the development fund included travel ($88,000) and a variety of small items such as photocopying ($4,600), meetings ($2,900) and computers and office equipment ($2,300).

10. Psychiatry

a) Overview

The department of psychiatry includes 16 faculty who are members of the Association of Dalhousie Psychiatrists plus 70 psychiatrists and psychologists with varying degrees of involvement with the teaching programs. Part-time faculty are located in Halifax and other Nova Scotia locations, in Saint John, N.B. and in Charlottetown, P.E.I.

b) Manpower

	84/85[1]	89/90
Full-time faculty	14	13[2]
Part-time faculty	4.1	70 (6.8 FTE)
Residents	17	17

[1] *Source: TSK report*

[2] *University full-time; varies from the number who are full-time or 80% time members of the association--i.e. 16.*

c) Basis of plan

This department has an agreement of association which is concerned only with financial and associated arrangements related to employment by Dalhousie. It

does not in any way deal with any matters relating to the non-teaching private practice of members.

- The agreement includes salaried full-time, geographic full-time and part-timers. It excludes those who are not paid by the University or who receive an honorarium only.

- On joining the department on a full-time basis, members can elect to become 100% or 80% (90% also possibility).

- Members are paid a salary. Salary is determined by academic rank, experience and other factors on an informal basis. Hospital salaries are used as a guideline.

- Because most psychiatric services are billed on a time basis, income is predictable based on time available to each member. Each member is expected to generate revenue sufficient to make up the difference between the university salary and total salary. Honoraria and third-party income also flow to the fund.

- No financial incentives have been developed within the association. All incentives relate only to private practice.

d) Disclosure and compliance

- Earnings outside association practice are excluded from disclosure to department head.

e) Contributions to research and development funds

- Research and development funds are comprised of "profits" to the association (i.e. excess of revenues over expenditures.)

- Allowable uses include:

  - Temporary salary support for new member of department.

  - Salaries and fringe benefits for support staff of the Department of Psychiatry.

  - Travel expenses for members and other designated representatives to seminars, conferences, etc.

- Rental of space or other charges by teaching hospitals related to the department of psychiatry.

- Ongoing salary support for members to support research or academic activities.

- Expenses related to continuing education for members.

- Flowers.

- Membership dues in medical and related groups and organizations in exceptional cases as agreed by the association.

- Social occasions that are combined with an educational or staff development function.

- Travel, other expenses , entertainment and honoraria for guest lecturers and distinguished visitors.

- Books and subscriptions for teaching purposes.

- Special equipment for which no other funding is available, i.e.. teaching aids, etc.

- Cost of reprints or articles related to teaching.

- Cost of reprints and distribution of published papers offered by members of the association.

- Printing of brochures related to teaching.

- Grants for research projects by members of the department for which funding is not otherwise available in whole or in part.

- Advertising vacancies within the department.

- Cost of departmental resident examinations.

- Salaries for summer research students.

- Miscellaneous and other expenditures not specifically mentioned.

f) External resources

i) Resources provided by Dalhousie:

- research and office equipment and supplies (minimal).
- administrator and two secretaries.
- eight secretaries (per sharing formula).
- computer.
- support services of finance and computer services (association billed for some of this.

ii) Resources provided by hospitals:

- research space, equipment, supplies.
- office space, equipment, supplies.
- eight secretaries (per sharing formula).

No charge is made by hospitals for these resources.

g) Funding

In 1988/89 teaching unit MSI earnings of the department of psychiatry amounted to some $685,000. The department received an additional $1,164,000 that year in university hard money. This money pays for university salaries of MD's as well as for psychologists who do not generate MSI revenues, and results in approximately $60,000 per GFT clinical faculty (i.e. MD).The MSI earnings were allocated approximately as follows:

Faculty salaries	$ 521,000	($32,500 per GFT)
Research and development	$ 39,000	
Travel and course fees	$ 30,000	
Miscellaneous (i.e. fees, Non DFA salary, recruitment etc.)	$ 95,000	

In addition full-time members of the department generated $769,000 in MSI earnings--$48,000 per GFT.

11. Radiation oncology

a) Overview

The department of radiation oncology includes both MD's and physicists based in Halifax teaching hospitals and in Saint John, N.B. All members of the department (based in Halifax) are paid a salary plus fee-for-service earnings up to 25% of salary (i.e.fee-for-service payments are made to the Nova Scotia Cancer Treatment and Research Foundation (NSCTRF)). NSCTRF pays the salary of all department members except the head of the department, who, as the only full-time member, is paid through Dalhousie (salary money comes from the NSCTRF).

b) Manpower

	84/85[1]	89/90
Full-time faculty	1	1
Part-time faculty	8(including St. John)	-
Residents (funded)	0	0 (Residency program due to start this year)

[1]*Source: TSK report*

c) Basis of plan

- All fee-for-service earnings are pooled. The billings clerk, parking fees and legal and accounting fees are paid from the pool. Honoraria income is excluded from the pool.

- There are no incentives. While overages (i.e. fee-for-service income over and above the 25% of salaries) are currently significant because the department is short staffed, if the department had a compliment of six members they would only break-even. Therefore, negotiating an increase in the share of fee-for-service earnings each member can keep is not feasible, at least not in the long-term.

d) Disclosure and compliance

- As the only GFT, the department head is the only one required to disclose income to the Dean.

e) Contributions to research and development funds

- The department made a one-time contribution of $5,000 to the university during a fund-raising drive. This is held in a fund for the department and could be used for visiting lecturers and supporting residents (of whom there are none because the resident training program is just beginning this summer). Typically members have paid expenses for visiting lecturers themselves. Members also support nurses and technicians to attend conferences.

- The department also has a very small development fund in the Foundation to which each member has contributed $500-$1,000.

- Benefits for part-time members are paid by the Foundation on the salary component of earnings with a similar arrangement for the department head through Dalhousie. Individuals pay for benefits on the fee-for-service component of earnings.

f) External resources

i) Resources provided by Dalhousie:

- The university pays only a very small amount for part-time honoraria. This sum has declined over time.

ii) Resources provided by Foundation:

- All space is provided free-of-charge.

- Royal College dues, CMPA fees and Nova Scotia medical licensing fees are paid for all members by the Foundation out of undistributed fees (overages). If fee-for-service earnings fall short of ceilings, these dues are paid by department members themselves.

- $2,500 per year per member is available from the Foundation for travel.

g) Funding

The radiation oncology department does not have an operating budget per se. Dalhousie provides a very small amount of money ($6,643 in 89/90) for part-time honoraria. Space and secretarial support is provided by NSCTRF. Expenses

such as Royal College dues, CMPA fees, etc are paid for by the Foundation out of undistributed fees. If fee-for-service earnings fall short of the ceilings, these dues are paid by department members.

The department has a small development fund to which members have contributed $500-$1,000. Average income for the department head (the only full-time member) will depend on the step in the salary scale (7 steps). Salaries range between $80,000 - $108,000 (plus 25% of salary in overage) and the department head of the foundation receives an additional $5,000.

12. Radiology

a) Overview

The department of radiology includes MD's and physicists based in Halifax teaching hospitals and CFB Stadacona, in Saint John, N.B. and in Kentville, N.S. Each hospital group has developed a partnership and works on a fee-for-service basis.

b) Manpower

	84/85[1]	89/90
Full-time faculty	1	1
Part-time faculty	38 (+7 Saint John)	49 (+ 8 Saint John)
Residents (funded)	14	13

[1] *Source: TSK report*

c) Basis of Plan

- All members of the department are part-time except the department head who is a GFT.
- A small honoraria of less than $2,000 is paid to each part-time faculty member based on a point system that recognizes teaching, continuing medical eduction, CME, committee work, papers, hospital department head commitments, and resident supervision. No income ceilings are placed on part-time members of the department.
- The department head's salary is determined by the Dean. The department head is the chairman of the partnership group of which he is a member. The partnership allocates a

certain sum in addition to the regular partner's share in recognition that the department head should be the highest paid member of the department. No income ceiling exists for the department head.

- Junior appointees to the department are brought on at a salary consistent with earnings of junior members of radiology departments across the country.

- Research, teaching and administrative commitments are not formally stated in the letter of appointment but there is an "understanding" of these expectations.

d) Disclosure and compliance

- As the only GFT in the department, the head is the only member of the department required to disclose his earnings to the Dean. Thus far, he has not been required to do so.

e) Contributions to research and development funds

Each hospital department has a commitment to the various development funds organized by the university department. The following development funds have been established for promotion of the academic program:

- Resident Educational Fund: supports each resident to attend one academic meeting per year in addition to payment of the tuition fee for each resident to attend the Armed Forces Institute of Pathology, Washington, DC. Also, full support is given to those residents presenting papers at academic meetings. All department members contribute to this fund according to a formula based primarily on the number of residents assigned to each hospital. Most residents are assigned to the VG.

- Development Fund: supports visiting professors and quarterly scientific meetings organized by the Department of Radiology which are held in Halifax. All department members contribute to this fund according to a formula that is again, based primarily on resident assignment by hospital.

- Faculty Continuing Medical Education Fund: support for this fund comes from individuals at all the university affiliated groups and is used primarily for attending academic meetings in the specialties, but also for support of clinical traineeships in other centres. Generally, this fund supports

individuals' accumulating new knowledge and techniques related to the introduction of new programs in the various hospitals, i.e.. new technology such as magnetic resonance imaging (MRI) and new techniques such as use of laser catheters for treatment of atherosclerotic disease. Contributions to this fund are voluntary and amounts vary by individual.

- Research Foundation: provides funding for departmental research projects (including salary support for a part-time member who serves as research director). This is derived primarily from the university departmental faculty members who voluntarily contribute $1,000 per year from clinical earnings (IWK and Saint John Regional groups do not participate). Limited funding is also derived from corporations and other public donations.

- Hospital-Based Department of Radiology Educational Fund: provides financial support for hospital staff members for continuing medical education, including sabbaticals. Each hospital partnership group has their own guidelines for supporting this program which is written into their partnership agreement.

- Hospital-Based Fellowship Fund: five to six fellowship subspecialty training positions are offered at approximately $45,000/yr (including benefits) with the university department on an annual basis. Each partnership is committed to supporting these fellows who participate fully in teaching and research activities.

All these funds are derived from clinical earnings from radiology staff in the affiliated university teaching hospitals. There is a formal formula for taxing each hospital group. Most members contribute $4,000 to $5,000 annually to these funds.

As most department members are part-time with no university benefits, these are purchased externally.

f) External resources

i) Resources provided by Dalhousie:

- The university provides a salary for the department head and a budget for part-time honoraria of approximately $2,000 per part-time member. This budget has been shrinking over the past four years (cut $13,000 in 1989/90 budget). Recently the

department head and the Dean were successful in negotiating $40,000 to protect time for research for a couple of department members. A secretary is provided for the department head and the university also pays a research assistant/secretary salary. No secretarial support is provided for any other department members. A very small university operating budget is provided.

ii) Resources provided by hospitals:

- Traditionally, offices have been provided for radiologists in the hospitals free-of-charge. As space is at a premium in several hospitals, offices are shared by many members.

- Secretaries are provided for hospital department heads. A portion of these salaries is billed back to the hospital department at the Halifax Infirmary and Camp Hill Hospitals. The VG and IWK do not bill back to the departments.

- No salary support for the university or hospital department heads is received from the hospitals.

g) Funding

The 1988/89 budget for the department was approximately $1.02 million. Of this amount, $290,000 was hard university money with the remaining $733,000 coming from fee-for-service earnings. Of the $733,000 approximately $180,000 is directed toward salary support for the department head and faculty researchers. The balance (including an annual donation of $22,000 by the VG group to the VG Research Foundation) is used for academic enrichment purposes.

13. Surgery

a) Overview

The department of surgery includes MD's based in the Halifax teaching hospitals, CFB Stadacona, Saint John, Moncton and Fredericton. No partnerships or practice plans exist in the department. Each member (in Halifax) is assessed a certain amount towards the development fund in the various divisions of the department.

b) Manpower

	84/85[1]	89/90
Full-time faculty	22	18
Part-time faculty	7.8	37
Residents (funded)	39	38[2]

[1]*Source: TSK report.*

[2]*Includes 8 funded through sources other than the department of health*

c) Basis of Plan

- There is no practice plan or partnership in the department of surgery.
- Income ceilings have not been established for any department members whether full or part-time.
- The department has established principles of financial arrangements which state that a research and development fund be maintained and that all clinical faculty members should contribute to this fund according to net total professional income. The principles also state that hard university salary money for GFT's should be allocated in such a way that the contribution of individual faculty members to research, education and administration is reflected.
- A point system has been developed to reward full-time members for activities not normally assigned to part-time faculty members, such as research and time-consuming academic administration. Based on the professional activity summary, the department head allocates points according to an accepted formula to each full-time member (division heads may propose some redistribution provided they have good reason). Total points for all members are then divided into the GFT salary budget and university salaries are allocated to each GFT member. This process is completed about every 2 years to recognize changes in activity levels

and to allocate budget cuts. The department head is excluded from the system as his salary level is determined by the Dean.

- The budget for part-time honoraria is small and amounts to approximately $3,000 per part-time member (except for two part-time members who, as division heads, receive up to $6,000). A point system was used to distribute part-time honoraria money four years ago. Since then, distribution has been left to the discretion of the division heads based on an "eye-balling" of academic activity.

d) Disclosure and compliance

- No members of the department disclose their income to the department head.

e) Contributions to Research & Development Funds

- The department has a research and development (R & D) fund with six components -- one for each division and a central component.

- Each faculty member is expected to contribute to their divisional component according to the formula developed by the division. In the division of general surgery, three levels of assessment have been established based on levels of clinical activity. Other divisions establish a flat rate for all members. Each part-time member contributes approximately what they receive as an honoraria to the research and development fund. A per capita standard contribution to the central component is then transferred from each divisional component. The purpose of the central component is to support departmental activities such as the annual resident research day, visiting professors, books for departmental library, salary support for a computer technician, etc. The annual budget of the central component is about $40,000.

- All expenses to divisional R & D funds are approved by division heads. The divisional components of the R & D funds are used for resident travel, faculty travel, library books, equipment purchase and leasing and other expenses associated with operating the divisions.

- Members can also make voluntary contributions to the R & D fund to cover legitimate expenses related to research and

education, (such as secretarial and research assistant salaries) and receive income tax deductions for the contributions.

Contributions to the R & D fund over the past four years were as follows:

83/84:	$176,462
84/85:	$189,581
85/86:	$175,528
86/89:	$143,744
87/88:	$242,183

Note that these figures exclude salary supplements for faculty recovered from fee-for-service earnings by Dalhousie and salary support for other staff in the department.

Benefits are paid for full-time members by the university on the "hard" portion of their salaries. As hard money has declined over time for some members, many have opted to pay into Dalhousie to maintain a stable base for their pensions and other benefits. They pay the full cost of these benefits.

f) External Resources:

i) Resources provided by Dalhousie:

- Support from the university is primarily in the form of salaries and benefits for faculty and secretarial staff and honoraria for part-time faculty members. Last year, after salary expenses, approximately $12,000 remained to run the department. In recent years, in order to live within the budget, the hard component of salaries has been reduced (i.e. money has gradually shifted away from faculty salaries to secretarial salaries to meet increases negotiated by Dalhousie and hospitals without a corresponding increase in budget). This reduction in hard university dollars for GFT salaries has also been partly a result of other budget deficiencies in the Faculty of Medicine.

ii) Resources provided by hospitals:

- Office space and furnishings and access to clinics and OR's is provided at all Halifax hospitals. Individual physicians are billed for a portion of the overhead costs associated with clinical practice in the VG. Other hospitals do not charge an overhead fee. A very small operating budget ($200) is provided for the department at the VG. Modest salary support for the department head at Camp Hill and the VG is provided by these hospitals.

- Secretarial support by hospitals for GFT's and department heads is quite variable but difficulties exist as the VG which has not interpreted the COTH secretarial sharing formula in the same way as other hospitals have. The department of surgery at the VG has experienced difficulty in replacing university and civil service secretarial positions. In fact, the head of the department was without a secretary for six months while trying to negotiate with the hospital for a replacement. The VG has progressively replaced secure secretarial positions with benefits, with casual positions with no benefits, making it very difficult to recruit and retain well-qualified staff.

g) Funding

The 1988/89 budget for the department of surgery was approximately $1,830,000. Of this amount, $1,225,206 was hard university money, $146,418 is hospital funding and the balance of $458,565 comes from fee-for-service earnings. Of the $458,565, $215,017 was allocated to faculty remuneration and benefits and $243,548 to development funds (which included operating expenses of the department). The average income of full-time members was approximately $192,000.

14. Urology

a) Overview

The urology department is comprised of full and part-time members based in Halifax teaching hospitals. Faculty work on a fee-for-service basis with all but three members of the department belonging to a partnership. All income associated with the practice of medicine is pooled by members of the partnership.

b) Manpower

	84/85[1]	89/90
Full-time faculty	5	6
Part-time faculty	1.4	5 (include 1 post-retirement)
Residents (funded)	9	8

[1] *Source: TSK report*

c) Basis of plan

- There are two basic components to the financial arrangements of the department--a partnership arrangement incorporating full and part-time appointees and the department development fund.
- All but three members (one GFT and two part-time members) of the department belong to a partnership--Urology Associates. It takes five years to become a senior partner. Each year there is an increment plus opportunity to receive a merit increase for exemplary performance. A certain level of income is guaranteed during the first year in the partnership.
- The department head allocates hard university salary money annually to reflect academic activity .
- No income ceilings have been established.
- The lack of financial competition between individual members facilitates assignment of academic duties and staff recruitment.

d) Disclosure and compliance

- All GFT's may be required to disclose their earnings to the department head. The department head may be required to disclose his earnings to the Dean.

e) Contributions to research and development fund

- All members of the department contribute equally toward academic activities when these activities cannot be financed through university or hospital budgets.

- Each month, funds (in an amount indicated by the department head to be necessary to operate the department) are transferred from the pooled earnings of Urology Associates (8 members) to the development fund. At the end of the year, the total expenditures of the fund are divided by the number of members of the department to determine the contribution of each of the members outside Urology Associates. This money is transferred to a separate development fund maintained at the university. (Note that all expenditures from both funds are audited to demonstrate compliance with income tax laws.)

- Uses of the development fund include:

  - Accounting and legal fees.
  - Christmas bonuses-resident, secretaries, head nurse, OR supervisor.
  - Visiting professors, receptions, etc.
  - Resident exams.
  - Travel and conferences for residents and staffmen included in the pool (those outside the pool pay for their own travel.)
  - Fellows-teaching and clinical.
  - Secretarial salaries, overtime, etc.
  - Telephones, pagers.
  - Summer research students.
  - Computers.

- Another component of the development fund is the supplement to salaries. A portion of the pooled income can be used to supplement hard university money up to a certain level to maintain pension benefits. The full cost of the

benefits on the supplement is paid by the pool. Pooled earnings may also be used to provide a higher university base than university funds will provide. The Dean's approval has been received for these supplements.

- Contributions to the fund have been as follows:

  - 1986 - $152,670 ($16,070 per member)

  - 1987[1] - $171,051 ($17,105 per member)

  - 1988 - $130,349 ($13,686 per member)

[1]Note that members attended a number of conferences/seminars on new techniques that year. Travel was reduced in 1988.

f) External resources

i) Resources provided by Dalhousie:

- The majority of the budget provided by the university is used to cover salary and benefit costs. A very small amount is left to apply to other operating expenses.

ii) Resources provided by hospitals:

- Secretarial salary costs are shared between the university, hospitals and clinical practice although for the past six years no secretaries for new appointees have been cost shared.

- Some space is provided at each hospital for academic and hospital administration activities only. All non-teaching clinical activities are performed on premises located outside the hospitals, paid for by Urology Associates or the three members of the department who are not partners in Urology Associates.

  Space used by the department in the hospitals is for teaching or administrative purposes only. As a result, in all but Camp Hill Hospital (where one department member is paying rent), no charges are levied for office space. The department head feels that the time spent by members on hospital

administrative activities provides a good return to the hospital on the resources provided.

- Camp Hill Hospital provides salary support for the department head and a stipend is provided for the director of the transplant program at the VG

- A very small (~$100.00) budget is provided at the VG.

g) Funding

In 1988/89 full-time faculty members billed $677,000 through the teaching practice and $872,000 through other fee-for-service, for an average of $221,000 per full-time member. An additional $34,000 per GFT is provided in university funding. Distribution of contributions to the development fund and departmental operating expenses by full and part-time members is not available.

Exhibit IV-1
Clinical faculty manpower summary -- GFT's
1984/84 and 1989/90

Department	Number of GFT's -- actual 1984/85[1]	1989/90
Anaesthesia	10	6
Family medicine	10	11
Medicine	50	54
Obstetrics & Gynecology	12	9
Pathology	6	18[2]
Pediatrics	37	36
Psychiatry	14	13
Radiology	1	1
Surgery	22	18
Urology	5	6
Neurosurgery	0	1
Radiation Oncology	1	1
Ophthalmology	4	6
Otolaryngology	3	3
TOTAL	175	183

[1]*Source: TSK report for 1984/85; Dean of Medicine's office for 1989/90.*

[2]*Reflects change in status of VG pathologists from Civil Service to Dalhousie. Actual numbers have not changed.*

Exhibit IV-2
SUMMARY--EXPENDITURES OF MSI EARNINGS
BY DEPARTMENT
1988/89

All figures in $000's

Department	Earnings[1] to Teaching Units			Other Earnings (Non TU)			Contribution to Development fund	Ave. MSI income per GFT	Ave. university $ per GFT	Ave total per GFT
	FT	PT	TOT	FT	PT	TOT				
Anesthesia	-	1,516	1,516	755	4,580	5,335	124	N/A	48	N/A
Family Medicine	328	154	482	116	1,275	1,391	45[2]	40[5]	47	87
Medicine	891	1,033	1,925	3,669	6,230	9,890	790	110[5]	31	141
Obs/Gyn	636	234	3,803	452	3,351	3,803	160	106[5]	44	150
Pediatrics	1,342	916	2,258	830	1,694	2,524	183	73[4]	32	105
Pathology	N/A						208[7]		15	139
Psychiatry	602	35	637	647	1,971	2,618	39	80[4]	60	140
Radiology	N/A						553[3]		90	
Surgery	844	5	849	2,921	7,985	10,906	216[3]	192[4]	40	232
Urology	677	-	677	872	845	1,717	130[3]	221[6]	34	255
Neurosurgery	-	-	-	206	791	997	10	N/A	27	N/A
Radiation Onc.	N/A								-	
Ophthalmology	504	0	504	244	4,801	5,045	65[3]	136[4]	48	184
Otolaryngology	-	11	11	570	1,808	2,378	150[3]	114[4]	30	144

Note: Figures exclude out of province earnings (note these were included in graphs). Therefore MSI earnings are less than total clinical earnings.

[1]Includes only earnings of faculty who were full time for the entire year. It is therefore somewhat understated
[2]Based on 6.5% of total earnings of full time faculty and teaching unit earnings of part time faculty
[3]Includes departmental operating expenses
[4]Excludes out of province income
[5]Includes all sources of clinical revenues, including out of province
[6]Department operating expenses not deducted
[7]Estimated for 1989

V

THE EVOLUTIONARY PROCESS ALLOWS FOR RESOLUTION OF WEAKNESSES

In this chapter we identify strengths and weaknesses of the current arrangements, both as identified by department heads and from our own analysis.

A. STRENGTHS OF THE CURRENT SYSTEM INCLUDE FLEXIBILITY AND COMPETITIVENESS WITH OTHER UNIVERSITY CENTRES IN NORTH AMERICA

Strengths of the current system include the following:

- Flexibility of individual departments to develop arrangements suited to their practice patterns.
- Individual initiative, responsibility and productivity is encouraged in several departments.
- Income sharing in many departments assists with recruiting high quality new staff and in protecting time for non-clinical activities (i.e. research, teaching). This arrangement has allowed departmental growth and provides disincentive to upsetting balance of teaching, clinical and research activities.
- Accountability within department to each other and to department head is ensured in several departments.
- Ability to be close to competitive with private practice fee-for-service incomes in some departments.
- In some departments the system is open, understood and perceived as fair by participants.
- Some arrangements quantify clinical, teaching, academic and administrative duties in objective fashion (i.e.. "points" systems) and pay according to points value. Such systems reward such activities.
- Development funds can assist in development of necessary services and people that would not otherwise be provided.

- Research is enhanced through allocation of development moneys.
- Some bonus systems encourage departmental collegiality.
- Arrangements in some departments promote good planning. Departments have been able to grow despite the limited growth in university funds.
- A number of departments combine a base salary with an incentive system. This allows security plus incentive to productivity.
- Small groups allow accountability of members for all areas of activity.
- A great deal of "free" teaching and administrative time is provided by faculty members.
- Practice plan provides safeguards against abuse of the university position.
- In one department where earnings are pooled by GFT's and part-timers and shared equally, the competition between the groups is essentially gone. Part-timers can be asked to assume major responsibilities for teaching, research or administration without fear of loss of personal income.

B. BUT DEPARTMENTS VARY IN THEIR DEGREE OF COMPLIANCE

At the time of our review a number of weaknesses were identified. These include:

- Increasing reliance on fee-for-service earnings to support academic and research activities is both insecure and threatens the quality of academic (teaching and research) activities.
- In some departments, GFT incomes are substantially less than those of part-time faculty or non-Dal affiliated practitioners.
- Sufficient funds are not generated to support development of required subspecialists.
- Complexity and variability of arrangements within and between departments leads to suspicions. Inequities are perceived in several areas.
- Departments may risk insolvency when minimum earnings to an individual are guaranteed but clinical earnings are not.
- Not all departments or divisions contribute equally to research and development funds.

- Adequate resources do not necessarily result from system. Burnout is a threat in several departments.

- Some disincentives in arrangements to all activities (i.e.. if all overage must be shared why should I work harder?)

- In some departments earnings are not competitive with counterparts in other medical faculties.

- Insecurity of funding makes planning difficult.

- Absence of a practice plan in surgery makes it difficult to support research.

- Lack of adequate compensation for administrative duties, especially in hospitals

- Benefits, especially pensions, are perceived to be well below those provided for GFT's in other Canadian medical schools.

- Those departments earning relatively less than others (i.e.. family practice) have greater difficulty ensuring sufficient funds for their department's research and development needs.

- The level of funding provided by the New Brunswick government for funding of Dalhousie medical school operations in that province is considered much better than that provided in Nova Scotia. We were advised that, in at least a couple of cases, this has resulted in faculty members moving from Nova Scotia to New Brunswick.

- Most practice plans do not incorporate the ability to reward outstanding contributions.

- Fringe benefit arrangements do not necessarily provide equity between full and part-time members. However, part-time faculty benefit from other balancing factors.

C. ON BALANCE, THE CURRENT SYSTEM IS APPROPRIATE GIVEN A FEE-FOR-SERVICE SYSTEM

Benefits of the current system over a salary system include the following:

- Since all GFT faculty members currently work substantially more than 40 hours per week a significant increase in the number of staff would be required to provide the same number of hours based on a 40 hour work

week. Hence the cost to the "system" could increase substantially if a salaried system was implemented since more faculty would be required to perform the same level of work.

- A salary system provides no incentive for productivity or clinical excellence.
- Salaries would further aggravate the competitive disadvantages of Dalhousie relative to other Canadian medical schools.
- Salaries could increase the disparity in earnings between part-time and full-time faculty, further eroding the potential to recruit quality full-time faculty.
- Salaries would eliminate departmental flexibility to hire investigators to solve new problems and to send members away for fellowship training, CME, etc.
- Salaries may not adequately reflect the stresses associated with some practices (i.e. cardiology). The fee-for-service system, at least to some extent, recognizes working conditions.
- Salaries are unlikely to provide a mechanism to guarantee sufficient staff numbers, particularly when new diseases appear (i.e. AIDS).
- Flexibility of staff "in the trenches" to respond to identified patient care needs would be reduced.
- Many current faculty would probably leave if salary system were introduced.
- A salary system would further reduce ability to train and to recruit subspecialists.
- In some departments GFT's would become part-time; this could lead to an erosion of service, teaching and research activities. Given the average earnings of part-time faculty, it could also increase costs.
- The system would lose the non-remunerated time of GFT's; one small department alone estimated this to be $2 million per year.
- Development funds now used for research and academic activities would probably cease to exist.
- Some faculty fear that the number of positions approved would focus on requirements for clinical work only or teaching only and that the "unrecognized" components would suffer due to inadequate human resources.

D. HOSPITALS HAVE EXPRESSED A NUMBER OF CONCERNS

Hospitals recognize the value of participating in education and research activities. Hospital CEO's all indicated that GFT faculty members make very significant contributions to the administration of the hospital over and above what is normally expected of medical staff. For the most part this activity is not compensated. Some hospitals have chosen to provide resources, such as space, free of charge as compensation for this activity. In other hospitals this time is spent but rent for space is returned to the hospital.

To ensure high quality patient care, teaching and research, a partnership between the university, the hospitals and the clinical departments must exist. Hospitals in Halifax have identified a number of weaknesses both in existing arrangements and in the principles now agreed by the Faculty of Medicine. These weaknesses include:

- The system of departmental autonomy does not guarantee that university, clinical and department and hospital objectives are always in concert. Hospitals wish to ensure that manpower planning is appropriate to service needs and available resources.

- Hospitals are concerned that the potential for a service to become non-viable could jeopardize patient care and teaching needs.

- The current system allows inequities within and between departments that have the potential to disrupt services.

- The current system allows individuals to manipulate the system by moving from one status to another (i.e.. full to part-time) in order to increase income.

- Hospitals are being increasingly asked to provide salary support for specific positions. When this occurs they wish to know details of an individual's earnings in order to evaluate the request. In the past this has not been readily forthcoming and the proposed system does not provide for disclosure to hospital CEO's.

- Hospitals need to know resource utilization for teaching and research activities. In some hospitals this is not known.

- Hospitals wish to be equal partners in planning with the faculty of medicine. They wish appointments to be truly joint in nature. The hospitals believe the previous system has allowed the university to "dictate" to them with respect to appointments.

- The system does not guarantee hospitals adequate coverage in some areas. For example, the Grace Maternity Hospital has had an ongoing problem with obtaining adequate anaesthesia coverage.

- Some hospitals believe there should be salary ceilings to increase accountability.

- Lack of accountability to the hospitals sometimes jeopardizes the hospital's ability to recruit required staff.

- Lack of ceilings on use of diagnostic services billed through the hospital system can create problems for hospital budgets.

- The current system allows departments to plan independently without necessarily involving the hospital.

VI

NATION-WIDE TRENDS AND PRACTICE PLANS IN OTHER CENTRES

In this chapter we discuss nation-wide trends influencing development of practice plan arrangements. We then describe the specific arrangements in place at four other Canadian universities.

A. A NUMBER OF NATION-WIDE TRENDS INFLUENCE PRACTICE PLAN ARRANGEMENTS

A number of nation wide trends in funding of faculties of medicine and teaching hospitals need to be understood in order to assess what options are available to Dalhousie. We briefly outline these in this section.

- Increasingly teaching is being carried out by full-time faculty. In most medical schools all new faculty members are full-time, with part-time staff being engaged only when the specialty or subspecialty cannot otherwise be staffed.

- University hard money to support clinical faculty activities has been declining as a percentage of total budget requirements.

- University-wide guidelines are increasingly being applied to operation of practice plans.

- Most universities are moving toward income ceilings.

- Clinical faculty departmental operations are increasingly supported through fee-for-service earnings

- Full-time faculty are included in practice plans across the country. Often part-time faculty are not.

- All hospitals, both teaching and non-teaching, are expanding the role of medical staff in administration. More stipends are being paid to medical staff to recognize this contribution.

- Hospitals are increasingly being asked to contribute funds to university clinical departments.

- Constraints in hospital facilities and budgets have reduced hospitals' abilities to meet expectations for office accommodations and secretarial support of clinical faculty, especially new appointments.

- Numbers of residents and interns have been reduced.

- Increasing reliance on fee-for-service income to support the development of the department (subspecialist training, additional specialists in low fee generating groups such as geriatrics, researchers not yet "credentialled" by traditional granting agencies.)

- Hospitals are increasingly rigorous in undertaking impact analysis to relate changes in medical staffing to hospital costs.

- Grants from traditional granting agencies (i.e.. MRC) are increasingly restricted to researchers with a previous track record. Therefore practice plans are particularly critical in providing seed money to allow new researchers to develop a track record.

- Increased competition between health sciences centres for quality research staff puts an increasing strain on financial resources, since scientists do not generate fee-for-service revenues.

- The trend to subspecialization means increased numbers of specialists to serve a less rapidly increasing population. Each subspecialist may be unable to generate sufficient fee-for-service revenue to be self-supporting.

- Universities are more and more establishing contractual arrangements with new faculty members that outline academic, clinical, research and administrative goals as well as financial arrangements related to their appointments. Appointments are made for specified terms.

- In other cities hospitals are competing to maintain teaching hospital status, while the number of residents and interns has been decreasing.

B. UNIVERSITY OF MANITOBA MEDICAL SCHOOL HAS A FACULTY-WIDE PRACTICE PLAN

1. Nature, organization and administration of the practice plan

- All GFT's participate in a faculty-wide practice plan that was developed by the Dean and representatives from all clinical departments. A few modifications were made to the plans by the Vice-President, Administration, of the university. The practice plan stipulates that no private practice is allowed outside the plan and that

members cannot maintain an office outside the university teaching hospital in which they are based. All members of the plan belong to the University Medical Group (UMG) which employs an executive director and a business manager who are responsible for the day-to-day administration of the plan. An Advisory Committee to the Dean of Medicine comprised of the Dean, and the heads and two elected members of each department in the group monitor the function of the plan. The Advisory Committee makes recommendations on budgeting policies and procedures pertaining to income and expenses, reviews threshold levels and formulae for excess income distribution and develops procedures to assist in the support of members who take study/research leaves.

- Revenues of the plan include all remuneration from clinical practices, all stipends from individuals, firms, partnerships, syndicates or corporations and any other income derived from practicing medicine. Salary income from the University of Manitoba, or hospitals or stipends from research agencies paid directly to an individual member remain the income of the member (versus the group) but are taken into consideration in determining total annual income. Payments by the university into an employee benefit plan are also considered salary income and are included in total annual income.

- After paying UMG expenses (a portion of which is allocated to each department using the same ratio as its contribution to group income), overages are distributed as follows: 40% to the individual, 10% to the Faculty Fund and 50% to the departments. The Faculty Fund is controlled by a committee comprised of the Dean of Medicine, Vice President Academic, Vice-President Administration, one representative of the clinical departments, two representatives of the faculty council. Submissions to the fund (which is about $250,000) are reviewed and approved by the committee for such things as support for basic science departments, visiting professorships, student projects and instructional equipment purchases.

- Each department controls the use of its "overages" but typically these funds are used to run the department -- paying for support staff, computers, nurses. Non-salary expenses account for only 15% of the university operating budget for the Faculty of Medicine.

- The president of the university or a designate monitors compliance annually. A certified statement of professional income and expenses is submitted on a form provided by the university. The statement is made available to the Dean and the department head.

2. Reimbursement, sources of funding and benefits

- The Dean, in consultation with the Advisory Committee recommends a range of annual income thresholds for each specialty. In establishing the range, an attempt is made to reflect the average annual net incomes for specialists in private practice. Each range has five steps and in establishing the specific annual income threshold within the range for an individual, academic rank, seniority and the contribution made (or expected to be made) by the member is considered. The department head's salary is usually $10,000 higher than the highest threshold for the specialty. The salary component of the threshold is based on teaching activities and/or hospital-related responsibilities such as hospital department or division head. This is determined by the department head in consultation with the Dean. Up to 20% of the threshold may be awarded for merit. Each department negotiates an allowable overhead (for journals, entertainment, CMPA, MMA dues, etc.) usually in the range of $14,000-16,000 which is added to the income threshold for the purposes of calculating overages.

- Sources of funding for salaries include the teaching hospitals (for department heads, associate department heads, section heads, director of departmental labs and special care units, clinical service chiefs and stipendiary medical staff), the university and fee-for-service earnings. The salaries paid by the hospitals for being hospital/division head, etc., vary between hospitals. 40-50% of salary money (i.e. net allowable or taxable income) is hard money, 20-25% of which comes from the hospitals. Overtime, soft money has increased as a percentage of the total salary budget.

- The arrangement for payment of benefits for GFT's was revised in 1986. The base for calculating the university's annual contribution towards pension and life insurance was established at $60,000 as of January 1986. This amount is adjusted each year by a percentage equal to the percentage in the floor of the salary range for a full professor in the immediately proceeding year (now about $63,000.) The university contributes 6% of the pension base (less any amount contributed to CPP) to the pension plan applicable to GFT members. Members are then free to contribute to their own RRSP's. Disability insurance is now purchased through MMA.

3. Other resources

- Faculty members holding hospital positions outlined above are provided with office space, support staff, equipment and other resources necessary to conduct hospital functions associated with such positions. These positions may be held by part-time members

of the Faculty of Medicine. Some charges may be incurred for resources provided to those other than department heads. Overhead charges for GFT's with offices in the hospitals are incurred -- some are taken directly off the top of group income while others are charged back to individual departments. These arrangements do not appear to be straightforward.

4. University policies

- There are no policies on retirement or on employment of family members.

5. Other

- Some part-time department members receive honoraria and others do not. No income ceilings exist for part-time members. Most departments are comprised mainly of GFT's except psychiatry where part-timers predominate. A salary line has been determined for these major part-time faculty but they receive no benefits. Although not part of the practice plan, part-time members of the psychiatry department contribute significant amounts towards the operation of the department. This is necessary because with very few GFT's, there is very little overage generated to run the department.

- In other departments some part-time members contribute voluntarily to departmental funds that support resident travel.

- Teaching, research and administrative commitments are detailed explicitly in the offer of employment for new department members.

C. UNIVERSITY OF BRITISH COLUMBIA MEDICAL SCHOOL PRACTICE PLANS ARE ORGANIZED BY DEPARTMENT

1. Nature, organization and administration of the practice plan

All clinical departments have a form of practice plan for full-time (GFT) members although some departments are more rigorous than others in enforcing participation. For example, in some departments, older faculty members who were appointed prior to the faculty's developing practice plan guidelines do not comply with the guidelines. No restrictions are placed on the incomes of part-time members. For all but two clinical departments (anaesthesia and radiology) practice plans dictate only the salary ceilings (some are hard and some soft) and how overages are to be distributed. Fee-for-service payments go directly to individual faculty members and overages are distributed according to Faculty of Medicine guidelines. These guidelines are used by all departments

except anaesthesia and radiology. 10% of overages go to the Dean's fund, 20% to the department and 70% to the division. The latter is used to cover divisional expenses for support staff, research, equipment and other operating expenses. Some operating funds are provided by the university to cover supply costs but it is insufficient to run the departments. The total university operating budget for the Faculty of Medicine is approximately 25 million dollars this year.

The practice plans for anaesthesia and radiology are administered through the hospitals. Fee-for-service payments go directly to the hospitals and they pay the anaesthetists and radiologists salaries. In addition to these salary costs, the plan covers secretarial and office costs. After all budgeted costs are covered, a committee, comprised of members of the plan decides on the distribution of overages. The Dean's office gets a percentage of the overage which typically amounts to about $1,500.00 monthly. Other allowable expenses include library books, travel, CMPA and BCMA fees for members.

All remaining practice plans are administered at a departmental level. The university is not involved in any way other than by knowing that funds other than those provided by the university are supporting the operation of the medical school.

The department head monitors compliance. However, some are reportedly more aggressive than others in their monitoring. In some departments with soft income ceilings, income tax information is reviewed. Public information is used to monitor compliance in departments with hard salary ceilings.

2. Reimbursement, sources of funding and benefits

The department heads set salary ceilings for clinical department members. These are usually at the 75th percentile of earnings by specialists in private practice. We were advised that most ceilings are such that a very significant effort would be required to achieve an overage. Department head salary ceilings are established by the Dean. The university does not have a salary scale per se. Salaries are market-driven. In some specialties, however, the university has had difficulty in remaining competitive.

In departments with hard ceilings, the ceiling applies to gross earnings while those in department with soft ceilings, apply to net earnings. Currently the nature and dollar value of allowable expenses is being debated. Ceilings apply for the most part to salary and fee-for-service earnings. Honoraria income and other income is usually excluded unless a major time commitment has been involved in generating the extra income (in which case, the Dean's permission would be necessary to engage in the activity.)

Some clinicians are paid a salary through the Ministry of Health for providing certain services and programs that could be billed on a fee-for-service basis but which would not generate sufficient income if billed this way (either because of insufficient volume or because the fee schedule would not reflect the time commitment necessary to manage highly complex bases.) The Ministry has a salary scale based on qualifications and experience. Salary payments plus a 50% overhead charge for benefits, secretarial and

office costs, etc., are made by the Ministry to the university which in turn pays the clinician. These payments amounted to about 6 million dollars this year.

Research grants of 32 million dollars this year also provide salary support for faculty members.

Salary support is also provided by teaching hospitals and other related agencies for individuals with joint appointments who hold hospital positions such as heads of departments and their secretaries. Approximately four million dollars in salary payments were received from these sources this year.

Faculty members can choose their paymaster. However, this is typically the agency that pays the biggest portion of the salary. Two factors can influence this choice. First, the university pension plan (money purchase) is perceived to be better than the hospitals' deferred benefit plan. On the other hand, the hospitals will allow differing year ends for clinical practice. This provides a tax advantage for physicians paid through the hospital.

3. Other resources

Full-time faculty members and some part-time members have offices in hospitals. When they perform private practice fee-for-service activities they are charged for associated costs such as secretarial time and office supplies.

4. University policies

A compulsory retirement policy in effect at University of British Columbia is currently being challenged at the Supreme Court.

The university has a policy on employing family members but this is not considered a big issue by the Faculty of Medicine. Employing family members is, however, discouraged.

D. UNIVERSITY OF TORONTO MEDICAL SCHOOL HAS A VARIETY OF ARRANGEMENTS

1. Nature, organization and administration of practice plans

- At the University of Toronto the practice plan is university-wide for the Department of Medicine. For other areas the plans are independent and in the process of evolution. For example, in the Department of Surgery all new appointments must agree to participate in a practice plan. A set of guidelines has been established by the Dean. These guidelines are followed to a greater or lesser extent by individual departments. To a large extent the

plans in place are established on a hospital department or division basis.

- The Sunnybrook Medical Centre is owned by the University of Toronto. As a result Sunnybrook is operated through three agreements -- one agreement from the university and Sunnybrook Hospital; one agreement between the physicians and the Sunnybrook Hospital University of Toronto Clinic (SHUTC); and the guidelines prepared by the Dean. All money received through SHUTC should stay within Sunnybrook Hospital and follows the Dean's guidelines.

  All hospital physicians (both full and part-time) must have joint appointment with the hospital and the university.

- Practice plans are an economic arrangement for the physicians. The university has an overall strategic plan for development of areas of excellence. The physician appointment system provides the university with the means to ensure implementation of its plan. Both the hospital and the university must provide appointments to medical staff and as such both would have a veto. In this way the university is able to assist in the development of areas of excellence by hospital departments. In addition, the university controls the expenditures of the funds for teaching and the assignment of residents.

- The hospital department develops and controls the practice plans. All practice plans must supply revenue information to the hospital department head who supplies it to the university department head. Typically financial reports (including revenue and expense activity) are provided on a quarterly basis to the university department. All practice plans must be audited annually by an independent accounting firm.

- The involvement of part-timers in the practice plan varies from practice to practice. Typically part-timers would not be included in the plan and could operate independently.

2. Reimbursement, sources of funding and benefits

- The actual compensation provided varies from plan to plan. However, in all cases geographic full-time physicians operate under salary ceilings. These salary ceilings vary from department to department and division to division. However, they tend to be the same for all members within a particular practice plan. In addition to the salary ceiling, indirect and direct expenses are allowed to individual physicians. The direct expenses include those costs that

are directly associated with the practice. Typically they would have no overall caps but must be realistic. In some cases, physicians will be allowed to set up practice outside the teaching hospital where referral patterns require it. Indirect expenses include such things as cars and conventions. Typically caps are placed on the total amount of money allowed in these categories.

- The overage formulae vary from practice plan to practice plan. However, a typical example would be as follows:

- 50% of the overage to the individual directly.

- 10% to the Dean's Fund.

- 5% to the Chief of the Department.

- 5% to research.

- 30% distributed equally to all members of the practice plan.

In the Department of Medicine all overage is divided equally among the participants in the practice plan. The technical components related to lab and x-ray are provided as gross revenue to the practice plan.

- Individuals are allowed to participate in private practice. However, any fees resulting from private practice become revenues of practice plans.

- Individuals are allowed to choose and participate in three separate pension plans. This includes:

  - University pension plan.

  - Hospital pension plan.

  - A private RRSP pension plan.

Typically individuals will be in a position to choose which one is the most appropriate from their perspective.

3. Other resources

- Hospitals provide limited funding for management responsibilities. Also office, secretarial, and other practice support is provided for geographic full-time positions. Some hospitals (Toronto General Hospital) are now charging the practice plans for these services.

E. UNIVERSITY OF WESTERN ONTARIO MEDICAL SCHOOL HAS A VARIETY OF PRACTICE PLANS BUT IS IN TRANSITION

1. Nature, organization and administration of practice plans

- In 1987 the Dean of the Faculty of Medicine at the University of Western Ontario, in London, Ontario, proposed to introduce a new practice plan. This was to be applied to both GFT and part-time physicians with a university contract. The intention was to have a university-wide plan to which all physicians with a university appointment would conform.

- As things have evolved over time, part-time members have been excluded from practice plan developments. At the present time, the Dean is attempting to put in place a single agreement that would apply to all GFT' not involved in partnerships. He hopes to develop another standard agreement that would apply to GFT's in partnerships.

- As of 1988, practice plan contracts are tripartite agreements between the appointee, the university and the hospital.

- A practice plan advisory committee consisting of the following was established to oversee the administration of the plan:

  - The chairmen of all clinical departments with GFT's.
  - One to three elected GFT's from each department, depending on department size.
  - The Chief Executive Officers of the teaching hospitals (largely silent partners).
  - The Dean.
  - The Assistant Dean -- clinical affairs, who would be chairman.
  - Two representatives from the GFT association.

- All clinical earnings by GFT's and salary supplements (i.e. from hospitals) are deposited into a faculty monitored collection account in a bank.

- Honoraria up to 10% of "gross if earned" (GIE) may be kept by individual members.

- Expenses allowable within the plans have been a source of some concern. Therefore the faculty has determined that for most departments, an amount of roughly $30,000 (secretarial costs, space) will be deducted off the top of the 75th percentile earnings to establish the income ceiling.

- Compliance with practice plans is quite strict. The Dean's office indicates annually the information required, and the accounting procedures to be followed in preparing reports. An annual financial summary of all practice earnings and expenses is required from individuals. Those in partnerships must also provide detailed financial information (including a yearly general expense budget). The Dean's office provides a list of legitimate partnership expenses.

2. Reimbursement, sources of funding and benefits

- Aggregate ceilings have been established for each department at not greater than the 75th percentile of OHIP earnings by specialty. Radiology and rehab-medicine use historical data to determine ceilings.

- Overages are allocated as follows:

  80% to hospital department

  10% to hospital for medical research

  5% to Dean

  5% to departmental chairman

The Dean's fund is used to support a research office in the faculty and to cover other administrative costs, including those related to practice plan administration.

- For departments such as rehab medicine and psychiatry that do not usually generate overages, a tithe of 5% of GIE (for rehab medicine) and 1% of GIE for psychiatry is levied to support research.

- Contributions to departmental academic funds at Victoria Hospital operate under the following guidelines:

  - Contributions by on-site physicians with different types of employment status should be equivalent.

- The fund should be operated by an appropriately representative departmental committee.

- Where there are divisional funds a minimum of 25% of divisional contribution should be allocated to the departmental fund.

- Research expenditures from the fund should be documented.

► Part-time members are not required to contribute to development funds.

► Sources of funding for salaries include the teaching hospitals, the university and fee-for-service earnings. As with other Canadian medical schools, reliance on soft salary money has increased over time as resources in the hospitals and university have been constricted.

► Benefits are paid by the university on the hard portion of the salary. Any faculty member wishing to top-up benefits must do so personally.

3. Other resources

► Arrangements for provision of secretarial support and office space vary within the faculty and between hospitals. Long-time members often have both provided while, due to resource limitations, new appointees have been required to make their own arrangements for secretaries. Space is provided "within available resources". Some hospitals have been charging for space.

V

ELEMENTS OF THE PRACTICE PLAN

In reviewing the practice plans in Dalhousie and across the country, it became apparent that a number of elements must be considered. In reviewing the elements, the Royal Commission should consider the trends in other practice plans within the health care system in Canada. Any changes recommended must be appropriate to the organization and operation at Dalhousie University. Also, any rules implemented should be reasonable and enforceable.

In the following sections, we describe the individual elements, options within them, and, where applicable, the advantages and disadvantages of each.

A. UNIVERSALITY

This element deals with the universal application of the guidelines across the health sciences centre. In some jurisdictions the practice plan is similar for all departments and divisions. At the other end of the spectrum are health sciences centres (including Dalhousie) where practice plans and partnerships have been developed by each of the departments or divisions independently. A more moderate approach is in place in several health sciences centres across the country. In this approach the Dean establishes guidelines to be met by each of the practice plans. Each department or division is then responsible to develop an individual practice plan that fits within the guidelines.

At Dalhousie the faculty has developed a set of guidelines that have been agreed to and are being implemented by each department. These guidelines are consistent with the option discussed above. We expect that in the long term more issues could be included within the guidelines.

The universal plan provides for the most conformity within the university. In this way, equality is established amongst individual departments. The plan is relatively simple to understand and may be easily enforced centrally. Macro changes within the health care sector can be modified to have equal impact across departments. Administrative costs of such a plan can be borne by a central agency and hence reduce overall costs.

The lack of individuality is a disadvantage. Specific needs in departments could be compromised by developing a universal plan. Growth areas or areas where modification or change is required could be held back in the absence of individual department plans. Also, individual commitment to the plan is likely to be reduced.

The individual plan for each practice provides for autonomy and flexibility at the departmental level. In this way, departments can effectively plan and react to the needs in their specific areas. It also allows accountability through a peer review system. However, significant inequity may develop between departments. The overall thrust of the health sciences centre could be compromised by individual departmental directions. Also, the administrative costs of dealing with each department individually would be higher than the universal plan. It is more complex to deal with individual different plans and for the Dean to have a detailed knowledge and understanding of the operational plan.

The compromise position using guidelines to develop individual plans satisfies a number of the concerns in each of the other two options. By establishing and enforcing the appropriate guidelines, development of the health sciences centre can be effectively controlled in a co-ordinated manner. Individual plans can be developed independently to meet the specific requirements of each department and, to a lesser extent, the individuals within the department. The administrative costs and complexity are reduced slightly from individual plans but would be significantly more than for one universal plan applied to the entire health sciences complex.

Options:

- Faculty-wide, such as University of Manitoba and Queens University. This system ensures conformity and equality, is easy to administer and keeps administrative costs low. However it reduces individuality and individual commitment and may compromise departmental needs. Sometimes it increases recruitment problems. To be effective this system must reflect income differences between various specialties.

- Department specific within guidelines, such as those adopted at Dalhousie, University of Toronto and University of British Columbia. This system allows co-ordinated development while maintaining departmental autonomy and allows creation of plans suited to the particular needs of each department. However, the system does not guarantee uniformity and may be more complex and expensive to administer.

- Department only, such as was in place prior to adoption of the new guidelines at Dalhousie, but is not currently in place in any Canadian medical schools surveyed. In this system departmental autonomy is maintained with accountability through peer review. However, it allows disparities between departments, does not ensure the overall goals of the health sciences centre are met, is more complex and increases administrative costs.

To promote a balance of co-ordination and accountability with departmental autonomy and individual commitment, faculty guidelines with compliance mechanisms as now adopted at Dalhousie appear to be the best option.

B. CONSISTENCY WITHIN THE HEALTH SCIENCES CENTRE

In order for a practice plan system to work in an effective co-ordinated fashion, the arrangements between partners (i.e. university, hospitals, and physicians), must be consistent across the health sciences centre. Such factors as the appointment process, expense allowances, pay scales, benefit packages, office and support services, should be consistent across the health sciences centre. This should be enforced by a common agreement among all hospitals and the university.

Future planning of clinical development should be undertaken in a co-ordinated fashion. The impact of new clinical appointments should be reviewed by both the university and the hospital to ensure availability of resources to support the program. This should be accomplished through a co-ordinated impact analysis process between the hospitals, university, and each department.

Consistency is required for effective operation of the health sciences centre. The options range between little or no co-ordination to the formal agreement suggested in the paragraph above. At Dalhousie, a number of factors have been agreed upon by the hospitals and university (COTH) but agreements have been interpreted differently by different hospitals. Therefore, a number of discrepancies exist and consistency among the three parties as discussed above is lacking.

Options:

- Same agreement with all teaching hospitals, such as in place at Queens University. This allows equal treatment of all faculty irrespective of prime base.

- Different agreement with various hospitals, such as in place at University of Toronto, University of Manitoba and Dalhousie. This arrangement allows flexibility according to the resources available and the needs of the hospitals and university, but promotes a perception of inequality. Guidelines have been agreed by COTH but these are not uniformly applied.

  More consistency is required between Dalhousie affiliated hospitals in application of agreed guidelines.

C. INCOME

The income or revenue available to individuals within practice plans should include all sources of revenue derived from services associated with the health sciences centre (i.e. patient care, education, and research). Private sources of funds, including investments and other activities outside the health sciences centre, would be excluded from the practice plans.

Options to this element relate to how money is distributed to individual physicians. The options range from a completely open system where the individual physician keeps the revenue generated through his activities to a system where all funds are provided through a central pay master (possibly the university or the hospital) and salaries are paid out to individual physicians. The compromise position between these two extremes is common in health sciences centres across the country. These are either hard or soft salary ceilings. Within a salary ceiling a physician is allowed to earn and keep money up to a certain fixed level. Revenues in addition to this fixed level are called overages and are distributed through a number of methods.

Options:

- Salary. A salary system is not in place in any of the Canadian medical schools surveyed. The advantage from the funding perspective, is that government is better able to control expenditures. Provided appropriate contractual arrangements are developed between the university and the government, the system allows security and equity for the university. However, salaries may increase costs by requiring additional manpower and requiring additional resources for academic enrichment and research now contributed through practice plans. The system is foreign to physicians accustomed to fee-for-service, and, if implemented only in one health sciences centre, could lead to recruitment problems. Salaries would reduce entrepreneurship and individual initiative.

- Salary + bonus. This system is in place in some departments at Dalhousie, with salaries funded through fee-for-service earnings and some portion of overages (excess of gross income over expenditures) distributed among members, usually on a predetermined basis. Although we did not see this system at other universities, it is similar to the system of soft ceilings as described below.

  This system provides equity and security while allowing some degree of entrepreneurship if funded through fee-for-service. However, if funded through the university, it is subject to risks similar to those of salary as it may reduce entrepreneurship and contributions to academic enrichment. Additional funds for academic enrichment and research could be required or activity in these areas will be reduced.

- Hard ceilings. This system is in place at three other universities reviewed. In this system an individual may earn up to a maximum through fee-for-service with overages going to a departmental fund or Dean's fund. When hard ceilings are set at high levels it is similar to an open system and hence entrepreneurship is encouraged and marketplace factors are reflected. It is seen as equitable as it rewards productivity. If ceilings are set too low, it

would operate similar to a salary system. To be effective ceilings must reflect potential at other health sciences centres and private practice.

- Soft ceilings. This system is in place at two other universities we reviewed. One department at Dalhousie has recently agreed to such an arrangement. This system allows some reflection of the marketplace and promotes some entrepreneurship, while also enhancing academic enrichment.

- Open. In this system individual physicians keep what they earn. This system is simple to administer and encourages entrepreneurship. It provides income comparable to non-university positions. However, it can create serious inequities and reduce contributions for academic activities, hence, compromising the quality of university programs. Most universities have moved away from this system. Some departments at Dalhousie have an open system. However, since most GFT's share overage, the ability to generate individual income is limited.

At Dalhousie several departments have either salary plus bonus or soft ceilings in place. A small number of departments have no ceilings.

For accountability the open system should be eliminated in all departments. Options to be considered further for all departments should include salaries, soft ceilings and hard ceilings

D. EXPENSES

Both Dalhousie and other Faculties of Medicine examined allow deduction of direct expenses (i.e. those directly associated with health sciences centre activities) before determination of income. Some differences occur, however, in treatment of indirect expenses such as car allowance and promotion expenses.

If the direction is toward salary ceilings within the practice plan, it is important to develop criteria for the allowable expenses in the determination of salary ceilings. Salary ceilings should reflect the net revenues available to physicians. The expenses incurred by physicians should reflect both the actual expenses related to practice areas and provide physicians with fair and equitable treatment by Revenue Canada.

Guidelines should be established for direct expenses related to the practice of medicine. Included in this category would be all expenses incurred by the physician or the practice plan related to office or secretarial space not covered by the university or the hospital. In addition, such factors as office supplies, periodicals and other related expenses. Typically, these range from 30 to 40 percent of net revenues. Naturally, this would be reduced by the amount covered by the university, hospital or practice plan.

Guidelines must also be established for indirect expenses related to the physician or practice plan's activities but not directly attributable to the provision of care. Included in this category would be such things as promotional expenses, car allowance, conferences where the individual is not a speaker, etc. Caps should be established for indirect expenses that relate to guidelines established by Revenue Canada. Typically these expenses range from $10,000 to $20,000.

Options associated with the expense categories are really in the development of the salary ceilings. Practice plans could develop salary ceilings that make provision for expenses included in the ceiling. Alternatively the expense categories could be developed as described above and deducted from revenues to establish the salary ceiling.

At Dalhousie expense provisions vary between departments.

An effort should be made to ensure that:

(i) treatment of indirect expenses is consistent for all departments and

(ii) treatment of indirect expenses provides the maximum return to faculty within Revenue Canada regulations.

E. OVERAGE

Overage is the difference between fees generated through clinical practice and departmental operating expenses (i.e. base salaries, direct and indirect expenses). Treatment of overage is extremely important. One could argue that the difference between the practice plan and a medical partnership is how overages are handled. These are monies that are available to the department to provide for its future development within the context of the entire university. The options within this element are how the overages are treated. In some practice plans, the overages are, to a large extent, provided to individual physicians. The range varies from 0% to 90% as we look across the country. The method of returning these funds to the individual also varies across the country. In some practice plans, the percentage returned to individual physicians is divided on an equal basis. In this way, individuals who are more involved in the teaching and research activities share equally in the overages created by the department. In other plans, the overages are returned to individual physicians on the basis of their contribution to the overall revenues of the practice.

The next major category is the individual department fund. This fund is used for academic enrichment (i.e. seed money for new staff members, funding of clinical fellows, providing income for physicians predominantly involved in teaching or research, covering shortfalls in administrative costs, etc.). In some cases this money could be used to fund individual departmental research, either topping up existing funds or providing for special research projects. In some cases an honorarium is provided to the department head. In

some institutions a portion of the overage is directed to the Dean's fund to support overall university activities.

A typical distribution of overage revenue would be as follows:

- 50% to physician.
- 40% to the department fund.
- 10% to the Dean's fund.

The options in this element relate to the percentage of the overage allocated to each category and with the method by which funds are distributed.

At Dalhousie a Dean's fund has not been established. The Dean has resisted development of such a fund as he believes university objectives can be better supported by development of strong departments.

Options:

- To individual. This promotes entrepreneurship but does not promote the achievement of academic goals of the department.
- To individual and department. This is usually based on a formula that promotes both individual entrepreneurship and academic goals. Often the individual share of the overage is based on equal sharing by a partnership group. At Dalhousie some departments share overages based on equal sharing, some on a sliding scale and others are prorated according to earnings. All departments with practice plans in place at Dalhousie contribute overages to a development fund except those departments in which department members are assessed a certain amount each year to support department operating expenses.
- To Dean's fund. In some universities a percentage of the overage is allocated to a Dean's fund. This allows the Dean flexibility to reallocate funds between departments. At Dalhousie, the Dean uses university hard dollars for this purpose.
- To hospitals. In some universities (i.e.. University of Western Ontario) a portion of the overage is provided to the hospitals to support medical research.

The faculty guidelines do not specify how overages are treated and these vary from department to department. Some departments contribute more than others to academic enrichment. More consistency should be introduced to promote equity and to ensure provision of adequate resources for this purpose in each department.

F. BENEFITS

Throughout health sciences centres across the country, benefits are becoming a more important part of practice plans. Typically, the benefits available to positions relate to the university or hospital salaries. Considering the present shortfall in university funding, and the relatively small percentage of income related to university salaries for most individuals these benefits are often less than desired or required. The option in this element is the method of topping up the benefits to levels desired by individuals.

On one end of the spectrum, individuals can be responsible for topping up their own benefits. They can deal directly with benefit consultants or insurance companies to provide for these additional requirements. Alternatively, the hospitals or the university can provide for the arrangements for topping up the benefits. In this way, practice plan funds (likely part of the overage), would be directed to the university to buy benefits for members. The alternative is for individuals to arrange for their own topping up of benefits.

Topping up of benefits is typically paid for out of practice plan funds. This method allows individuals to receive the ideal balance between individuality and low cost. Therefore, the option is whether or not the administrative workload related to these benefits can be provided through university or hospital resources at a reduced cost.

Full-time clinical faculty at Dalhousie must participate in the university pension plan and also pay the employer's pension contribution on the clinical earnings component.

G. PARTICIPATION OF PART-TIME AND FULL-TIME FACULTY

Across the country, the majority of practice plans apply only to geographic full-time positions. Part-time staff will in most cases, have university and hospital appointments but not participate in practice plans. This provides part-timers with more freedom to practice and does not provide some of the benefits of geographic full-time status. The options available are:

- Not to include part-timers in practice plans.
- To include them as full members of practice plans or; as a compromise.
- To include them with some special status.

There is always an advantage to having one class of physicians practicing in the organization. In this way, guidelines established for one group are universally applicable to all other groups. A sense of fairness and equality is promoted. Also, the overall direction required by the health sciences centre can be more easily adjusted through one

group of physicians with equal status. On the other hand, many part-time staff enjoy their independence. They believe they are providing the most benefit to the community by emphasizing their private practice and that they are providing an appropriate level of support to the teaching and research activities of the health sciences centre.

In other universities reliance on part-time faculty has been diminishing. Dalhousie, however, continues to rely heavily on part-time faculty. In all other universities reviewed, part-time faculty are generally excluded from the practice plans (with some exceptions). In most universities part-time staff contribute to the department fund.

At Dalhousie some departments include part-time faculty in the plan, while others do not. Some are included with special status while others have the same status as GFT's. The Dean encourages inclusion of part-time faculty in the plan.

More consistency in treatment of part-time faculty should be sought. Since part-time faculty receive the benefits of university association they should be required to participate in financial support of the academic activities of the department. Consideration should be given to including all faculty, both full and part-time, in practice plans.

H. PRIVATE PRACTICE

At Dalhousie GFT faculty are permitted to engage in private practice outside the jurisdiction of the health sciences centre (usually two half-days per week). However, only a certain portion exercise this right The revenues generated through this private practice are left with the individual physician or with a partnership that operates within or without the practice plan. Physicians are able to provide an "office-type" practice to patients associated with the particular physician. In some jurisdictions physicians are able to set up private practices off-site of the health sciences complex in order to service a particular demand area or to increase the referral base of the health sciences centre. In such situations, the practice plan will recognize the additional expenses related to the private office in considering the salary ceiling of the individual.

The options in this area relate to revenues generated through the private practices. On one end of the spectrum all revenues can be retained by the individual physician. Alternatively, the funds can form a component of the practice plan and be subject to the guidelines with respect to ceilings. A second consideration in this area is the percentage of time individuals are allowed to provide private practice away from their health science centre responsibilities. This should be clearly defined. Most GFT's consider private practice very important for professional satisfaction and professional development. This private practice also allows physicians to have a certain level of independence in practicing medicine. However, one would question the possibility of a "two-level system" for clinic patients compared to private patients. The department head should be required to approve private practice.

The new Dalhousie guidelines require that clinical earnings of GFT's from private practice be included in the practice plan. This will ensure accountability for all earnings of full-time faculty. Private practice outside practice plans is still allowed in the University of British Columbia.

The guidelines in place at Dalhousie will resolve current inequities.

I. DISCLOSURE

In order for practice plans to operate effectively within guidelines or within an overall university framework, mechanisms for disclosure and measures of compliance are needed. Disclosure relates both to individual physicians and clinical departments.

Options in this area relate to the frequency and level of disclosure. Some jurisdictions' entire financial statements are provided to department heads and the Dean's office with respect to the expenses and revenue related to practice plans. In other jurisdictions, the Dean's guidelines and information on practice plans' financial operations are provided to independent auditors. The auditors are then responsible to review the information and provide a statement on the compliance of the practice plan with the guidelines. The method of disclosure is not the key factor but the level of disclosure and the mechanism for enforcing the practice plans are important. These two factors must be in place in order to ensure ongoing effectiveness of the practice plans.

The guidelines at Dalhousie provide for disclosure to the department head and the Dean. Some departments currently follow this guideline while others do not. All will in future.

The new guidelines are consistent with guidelines in place elsewhere in Canada.

J. UPDATING OF PRACTICE PLANS

The health care community is constantly moving and changing. Hence, the changing requirements of individual departments must be recognized and practice plans adjusted regularly. Practice plans must have built-in mechanisms for annual review and revision. This will ensure that the needs of the individual department, the university and physicians, are appropriately balanced.

A formal mechanism must be in place to review the guidelines and the parameters of the practice plans. Factors to be reviewed annually (as a minimum) are salary and expense levels and definitions and treatment of overages. No uniform system has been established at Dalhousie for updating the plans. However, most departments are reviewed on an ongoing basis.

VI

ARE CURRENT FUNDING ARRANGEMENTS APPROPRIATE?

In this chapter we discuss MSI earnings of full-time and part-time faculty and examine possible alternative funding mechanisms for Dalhousie.

A. THE CURRENT ARRANGEMENT DOES NOT FAVOUR FULL-TIME FACULTY

Clinical faculty are remunerated through a number of sources, including:

- University hard money.
- MSI fees.
- Hospital fees.
- Research grants.
- Hospital stipends.
- Fees from other sources such as WCB, DVA, Armed Forces, etc.

For most departments (pathology and radiology being the notable exceptions) MSI fees and university hard money provide the largest proportion of their earnings. For radiology and pathology hospital-paid fees combined with university hard money provide the majority of the income.

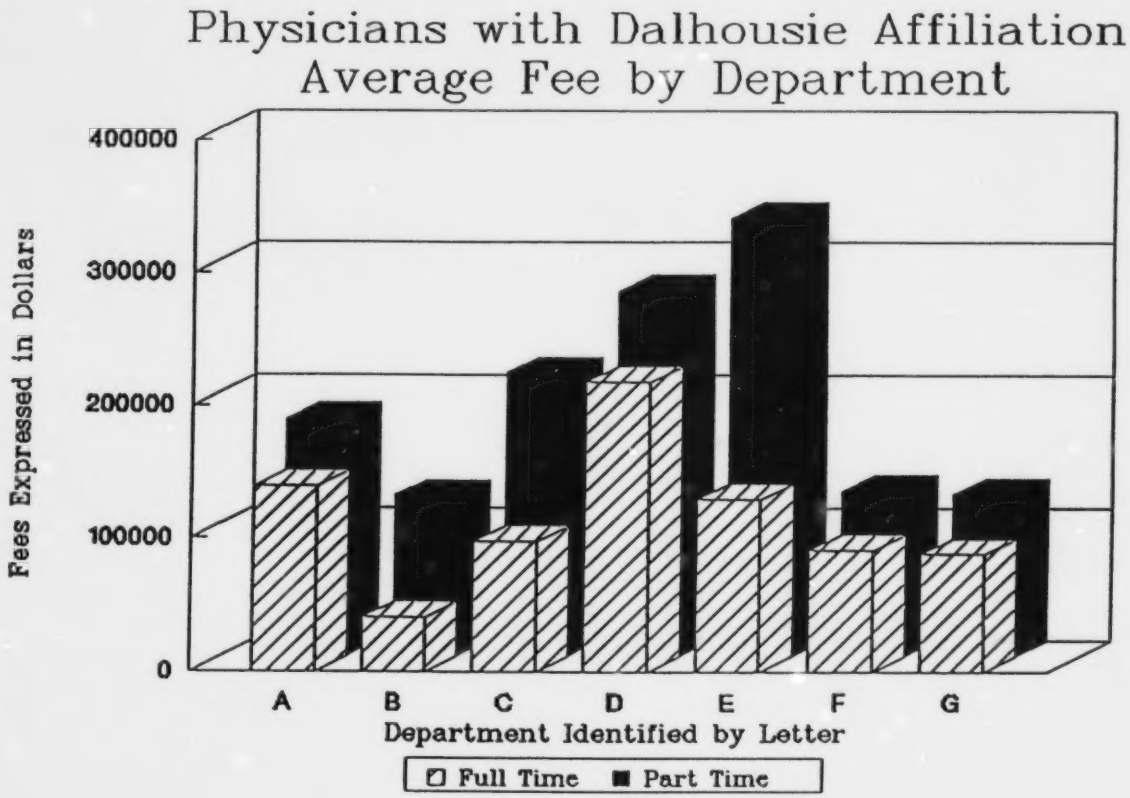
Concern has been raised that full-time faculty benefit unduly from their position. Critics claim GFT's receive the lion's share of university hard dollars in addition to clinical earnings, and do not have to pay overhead costs.

It is clear from a review of the practice plan characteristics that not all departments receive "free" overheads. In chapter IV we summarized the operating expenses of each department. Many secretaries are supported by the practice plans and rents are paid by many GFT's for their hospital facilities. And, in addition, a portion of clinical earnings is used for academic and research activities of the department.

Exhibit VI-I graphically shows the average MSI fee payments for full-time and part-time faculty members by department. Some small departments have been grouped together in order to preserve confidentiality. The graph shows clearly that MSI earnings are substantially greater--overall by approximately 70%--for part-time compared to full-time

faculty. By adding university salaries to the earnings of full-time faculty the differential is reduced, but part-time faculty still earn more than 30% above that of full-time faculty.

Exhibit VI-1



Note: Excludes radiology and pathology which are funded through hospital budgets. Also excludes radiation oncology which is funded through Nova Scotia Cancer Treatment and Research Foundation. Includes contributions to practice plans but excludes earnings from other sources.

Additional criticism of full-time faculty included the suggestion that in order to generate clinical earnings faculty increased patient and service utilization. Our findings indicate this suggestion to be invalid. Our analysis of utilization patterns is included in a separate appendix to this report.

Our findings indicate that full-time faculty do not receive preferential remuneration compared to their part-time colleagues or that practice plans per se generate increases in utilization of services.

B. HOWEVER ALTERNATE FUNDING ARRANGEMENTS SHOULD BE EXAMINED

Despite our findings that practice plans at Dalhousie are comparable to those at other medical schools and that they do not generate overly high incomes for full-time faculty, we were asked to examine the impact of alternate funding arrangements on the faculty. To quantify the impact of alternatives would require further indepth study beyond the scope of this study. We have therefore discussed these alternative funding mechanisms in general terms.

C. ALTERNATE FUNDING MECHANISMS

Practice plans have resulted from the need to account for fee-for-service payments to GFT's combined with the need to support academic and research activities. With the guidelines now in place at Dalhousie most of the weaknesses in the current system can be corrected. However even further refinement of the current system will not solve the Commission's concerns about cost escalation and inequities in the fee schedule.

As a result the Commission is considering alternatives to the fee-for-service system of remunerating physicians. Since many full-time faculty currently receive at least a portion of their income through salary, and some receive almost all of their income through salary, the Commission believes introduction of alternative funding mechanisms would be easier at Dalhousie than in other settings in the province. In this section we discuss first the advantages and disadvantages of the current fee-for-service system and then the alternatives being considered for both Dalhousie physicians and other physicians in the province.

1. The fee-for-service system has advantages and disadvantages.

The fee-for-service (FFS) system is well entrenched in the Canadian health care system. However expenditures through this system have grown well in excess of the rate of inflation and of the provincial revenue base.

Problems with the fee-for-service system include:

- The potential for overservicing.

- Since high technology services have been historically more remunerative than counselling services, the FFS system has encouraged substitution of high tech (and costly) procedures for more labour intensive alternatives.

- Services can be delisted (as in a recent case in Alberta) leaving patients responsible for those services.

- Some argue that the fee schedule encourages a "revolving door" style of medicine detrimental to the patient's well-being.

Recent U.S. initiatives to construct a "resource based relative value scale" have been undertaken with the intention of developing a fee schedule that accurately reimburses physicians for the skill requirements, complexity and costs of providing specific procedures. Also, the FFS system can be modified to include expenditure caps, utilization caps, income caps, or a combination of all three. For example, in Quebec income ceilings are set beyond which physicians are reimbursed at 25% of list fees.

The FFS system has advantages since it provides a direct link between volume of work done and earnings it rewards productivity. To the extent that the fee schedule accurately reflects complexity and skill requirements of procedures the FFS system compensates physicians in accordance with the difficulty of the services provided. It allows physicians a high degree of control over their own incomes and type of practice. It also produces a data base on volume of services not necessarily available through other systems.

However, the FFS system has not traditionally encouraged services such as prevention, counselling and education. Presumably the fee schedule could be altered, however, to encourage these services.

2. Capitation is worth considering

Capitation is a remuneration method in which a physician or group of physicians is reimbursed for the number of patients to whom they provide care, rather than for the number of services provided. Capitation also involves determining the reimbursement level for each person for whom care is provided. Within the system a number of variations can be established. A physician group can be paid on a capitation basis, but it may elect to pay its member physicians using FFS, capitation, or salary, or a combination thereof.

Advocates of capitation argue that it allows more control over expenditures and reduces costs. It is easier to administer than the FFS system. However the system generates fewer data on services rendered, making review of patterns of practice more difficult and time consuming. If it co-exists with a FFS system, and capitations are based

on FFS patterns of practice, the potential for adverse selection could occur in which "costly" patients are referred to the FFS physicians, thereby increasing the overall costs to the system.

Capitation is unlikely to be appropriate for all Dalhousie physicians unless the system is applied universally throughout the province. It may, however, be appropriate to consider for some departments--for example, family medicine.

3. Block funding (global budget) could apply

In this system an annual budget is established for a particular cost centre. This could be each clinical department in the Faculty of Medicine or the faculty as a whole. Increases in the budget would be negotiated annually and would usually reflect the rate of inflation plus costs for approved new programs. For at least the clinical component the funding agency would probably be the Department of Health and Fitness. Within the block funded group remuneration methods could be based on salary, FFS or other methods.

The advantage of block funding to government is that it provides a greater measure of control over expenditures than the FFS system. It necessitates obtaining government approval for new programs in order to obtain funding. For physicians and the university, block funding would eliminate the uncertainty inherent in the FFS system.

The potential disadvantages of block funding can probably be resolved by carefully establishing the parameters of the system from the beginning. Concerns over block funding pertain to the need to ensure that funds are sufficient to provide appropriate remuneration to physicians, to promote academic and research activities, to provide quality patient care and to develop required manpower.

The advantage of this system is that it could be developed for Dalhousie while the FFS system was still in place for non-academic physicians. However, treatment of part-time faculty would then require careful deliberation. If part-time faculty were to continue to be funded through the fee-for-service system, overall costs could increase through transfer of "costly" services to part-time faculty. It could also produce an exodus of full-time faculty to part-time status if remuneration levels were insufficient.

4. Salary provides better control but may not save money

A salaried system has two advantages from the funding perspective. First, government is better able to control expenditures, second, is the ease of administration. The potential incentive of the FFS system to over-servicing is removed. In fact, critics would suggest that salary provides an incentive to under-service, to be non-productive, to work shorter hours and to discourage continuity of care.

There are three key questions in the salary debate--the level at which salaries are set, who sets them and who will be the payor. The funding agency for the clinical component of the salary should be the Department of Health and Fitness which would also set the salary levels. Physicians are likely to resist becoming "civil servants" but may be

willing to consider salaries established in relation to income levels of peers in other settings. Salaries established at too low a level would result in exodus to more lucrative settings--either to part-time status if still in FFS, or to other universities.

New mechanisms to support academic and research activities would have to be developed. And, to the extent that productivity declines and salaried physicians reduce their contributions to hospital activities, additional manpower would be required. If this extra workload is provided by FFS part-time faculty the total cost to the system could increase.

D. THE PRACTICE PLAN SYSTEM NOW IN PLACE AT DALHOUSIE SHOULD CONTINUE

Unless and until the total system of funding medical services in Nova Scotia is changed, we consider the current system at Dalhousie to be that best suited to its requirements. The system should continue to be refined, in conjunction with the guidelines, and rectifying the weaknesses outlined in Chapter V. Furthermore, mechanisms should be put in place to control the excess earnings of a small group of part-time faculty. However, unless part-time faculty are required to participate fully in practice plans, the University cannot be held accountable for ensuring that these incomes are controlled.

APPENDICES

Appendix A

PRINCIPLES APPLICABLE TO DEPARTMENTAL PRACTICE PLANS, FACULTY OF MEDICINE, DALHOUSIE UNIVERSITY 1981

Stevenson Kellogg Ernst & Whinney

PRINCIPLES APPLICABLE TO

DEPARTMENTAL PRACTICE PLANS

Faculty of Medicine
Dalhousie University

Approved by the Heads of Clinical Departments

on 4 May 1981

and 10 December 1981

Approved by Council of Teaching Hospitals
(Principles 5 and 6)
on 25 March 1982

Principle 1: that a full-time (GFT) academic clinician or a full-time hospital clinician** be one who

- has a university-defined full-time appointment, and has a hospital defined full-time appointment,
- has a clinical appointment at an affiliated teaching institution,
- shall be jointly appointed by the university and the affiliated teaching institution*,

and further, that these appointments document:

(i) an explicit description of the clinician's total professional responsibilities to education, research, administration, and service, and thus his responsibilities to the university and the affiliated teaching institution,

(ii) an agreement that clinical service provided conform to Senate regulation 4.2.1.,

(iii) an agreement as to remuneration (from the university, hospital and practice) in accord with a practice plan developed by the department, mutually acceptable to the university, the department, and the hospital when it has contributed and including a suitable method of informing the department head and/or the Dean of total professional earnings,

(iv) an agreement that service generated income remain under the control of the department,

(v) a description of the joint responsibilities of the university and affiliated teaching institution for the costs of recruitment, moving expenses, the provision of fringe benefits, secretarial support, and office space and furnishings. For some full-time staff, the clinical appointment may not be restricted to one hospital. In such instances, the hospitals concerned should concur in these joint university-hospital(s) appointments, but wherever possible, one of the hospitals concerned should be declared as the clinical prime base.

(vi) an agreement to annual review of the clinician's role and responsibilities.

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* In the case of academic clinicians who practice in situations where no appropriate appointment in an affiliated teaching institution exists, the clinical practice of the clinicians shall meet departmentally approved criteria.

** A full-time hospital clinician is defined as one who by agreement between the hospital and the physician, is prime based at the hospital with activities, except for consultation, restricted to that hospital; has no office practice or other clinical practice outside the hospital and whose practice plan is agreed to by the hospital.

Principle 2: that a part-time academic clinician be one who

- has a university-defined and hospital-defined part-time appointment,
- has a clinical appointment at an affiliated teaching institution,
- shall be jointly appointed by the university and the affiliated teaching institution*,

and further, that these appointments document:

(i) an explicit description of the clinician's joint responsibilities to education, service, research, and administration, and thus his responsibilities to the univeristy and the affiliated teaching institution,

(ii) an agreement as to remuneration from Dalhousie University for academic functions approved for payment.

(iii) an agreement as to the relationship of the part-time appointee to the departmental practice plan,

(iv) a description of the joint responsibilities of the university, affiliated teaching instituion, and part-time clinician for the provision, when appropriate, of secretarial support, office space, and furnishings,

(v) an agreement to annual review of the part-time clinician's role and responsibilities.

Principle 3: that the university exert every effort to ensure that remuneration of part-time clinicians for academic functions, will be at a level equal to that for full-time clinicians, for the same activities. Similarly the hospital will exert every effort to assure that remuneration for hospital administration will be at a level equivalent to that of full-time clinicians for the same activities. The final remuneration computation will be reviewed and agreed upon annually by the part-time clinician and division and department heads.

Principle 4: (i) That a review of these principles be done annually by a committee appointed by departmental heads and chaired by the Dean of Medicine Improvements and modifications can thus be incorporated without undue delay.

(ii) that accountability throughout all departments be accomplished as follows:

(a) at the time of initial appointment of full-time academic clinicians, the details of all income will be agreed upon by the staff member, department head, Dean of Medicine, Dalhousie University and the hospital, when it has contributed to the salary. An initial appointment form will be completed and signed by all.

(b) annually, each department head will review the proportions of each full-time academic clinician's academic, administrative and patient care activities for the past year and plan for the upcoming year, together with the financial implications, using an annual activities form.

Principal 5:

Guidelines on Cost-Sharing of Offices in University-Affiliated Hospitals states:

It is recognized that:

a) payments provided by M.S.I. funds for services to patients in all parts of the hospital, including teaching units and ambulatory care settings, include funds for the payment of practice expenses,

b) the process of teaching at all levels reduces the number of services carried out per unit time, while fixed practice costs continue,

c) the teaching hospital requires many subspecialists to carry out clinical activities to support teaching programmes of other specialties and to enhance the quality of patient care.

In the light of these mutually supportive services of active staff of university hospitals and of the assistance of teaching hospitals to staff members, the transfer to the hospital of funds from M.S.I. recoveries of clinical teaching units is inappropriate.

The prime base* hospital will supply to full-time academic clinicians an equipped ofice for non-clinical work and research space when appropriate to the appointment. It is agreed that:

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* Prime base is defined as the designation, for those joint appointments who specify a particular hospital as their major or prime base; who assume responsibilities to that hospital as required in its Medical Staff By-laws and who by agreement are exempted from similar commitments to other affiliated hospitals.

1. clinical activity defined as office practice, ambulatory care and outpatient clinics will occur within the defined ambulatory care programme of a hospital, where there are regular assignments for clinical teaching. Appropriate reception, consulting and examining rooms and space for support staff are to be provided by the hospital in these areas,

2. hospital heads of departments will not be charged overhead for space and facilities provided by the hospital,

3. when the academic clinician (full or part-time) conducts an agreed upon, negotiated portion of practice unassociated with academic activities in the hospital ambulatory programme, rent for a designated office at an appropriate rate is to be paid on the basis of its use. The details of the rent are set out in the initial appointment form and reviewed annually on the basis of completion of an annual activities form. (See attached: Policy on Physician and Dental Offices in Hospitals from Department of Health.)

4. academic clinicians (full or part-time) who by agreement with the hospital see patients in their hospital (administrative) offices which are not in an ambulatory care centre will pay rent to the hospital under the same Department of Health Policy Guidelines (see attached).

5. the ambulatory care programme of a teaching hospital involves additional space and operating expense attributable to its teaching role. The Department of Health recognizes the existence of these additional costs,

6. physicians who practise in the ambulatory care setting of teaching hospitals have a reduced practice cost which offsets the additional time required for teaching in a clinical practice setting. Since the univeristy contributes substantial facilities and personnel to support ambulatory service, it is essential that the utilization of these facilities be accountable at departmental, faculty and hospital level,

7. the hospital will provide furnishings and equipment for offices and related areas.

Principal 6:

Guidelines on Cost-Sharing of Secretarial Support Services for Academic Staff in University-Affiliated Hospitals states:

1. Functions of academic medical staff appropriate for secretarial support services are:

   (a) Academic
   - teaching
   - research
   - administrative

(b) Hospital
- departmental administration
- medical staff administration
- patient care administration

(c) Medical practice
- with teaching
- without teaching

2. Functions to be included under the term secretarial support services are: - data processing, typing, reception, bookkeeping, patient appointments, telephoning, and filing.

3. For all clinical departments with patient care responsibilities an appropriate ratio of secretarial staff is required. Secretaries will be provided for staff, based on the workload of Faculty as defined in the initial appointment and annual activity forms, and approved by the physician, university and hospital. Special consideration will be made for part-time staff with major academic and hospital functions.

4. Additional considerations are present for university and hospital department and division heads as to the appropriate ratio of support staff.

5. In each department the cost of the total work force of secretarial support staff is to be proportionally shared by the (a) University, (b) Hospital, (c) income from medical practice and (d) other sources. The proportions paid by each are in general to equate with the proportion of the total work force involved in each of those four functions. For simplicity of application, the proportions of cost sharing will be:

University Head, not Hospital Head .....100% University
University Head/Hospital Head..... 50% University/50% Hospital
Hospital Head.....1/3 University/1/3 Hospital
Academic Staff.....1/3 University/1/3 Hospital
1/3 Practice
Academic Staff without "office" practices
(Radiology, Anaesthesia)..... 50% University/50% Hospital

6. All secretaries will <u>eventually</u> become employees of the hospital in which they work, with a single salary schedule and with suitable methods of salary recovery from various sources and with a single fringe benefit package to permit movement of secretaries within the system of affiliated hospitals.

7. The hospital will fund its share of secretarial costs up to the level of salaries and benefits for other comparable positions in the hospital.

J.D. Hatcher, M.D., E.A.Moffitt, M.D.

Office of the Dean
Faculty of Medicine

Appendix B

APPOINTMENT OF HOSPITAL BASED CLINICAL FACULTY MEMBERS MARCH, 1989

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HOSPITAL BASED CLINICAL FACULTY MEMBERS

FACULTY OF MEDICINE, DALHOUSIE UNIVERSITY

Approved and Revised as per Clinical Department Heads' Meeting
March 16, 1989

I. INTRODUCTION

This document applies to hospital based clinical faculty members, and there are recognized differences for the departments of Family Medicine, Community Health and Epidemiology, and Pathology.

The academic medical centre combines the roles and responsibilities of a university and of a hospital. The university provides students with an opportunity to learn in an organized way, and the hospital provides care for the sick.

The Faculty of Medicine of a university is responsible for the education of undergraduate and graduate medical students and for the continuing education of physicians. The teaching hospital must provide clinical care of a quantity required to look after the needs of patients that are appropriately referred to the institution and of a quality that meets international standards. In addition, the teaching hospital has a major role in the clinical teaching of undergraduate and graduate medical students. The clinical education programs require a variety of patient problems, from simple to complex, from common to uncommon, from inpatient to outpatient, and from the broad sections of medicine.

Both institutions have responsibilities for research and these are needed over and above the requirement to share in the

provision of new ideas and new knowledge. Research activities are essential to attract the highest quality of clinical faculty, to keep members at the forefront of their fields, to provide assurance of quality of clinical and educational programs, to allow rational evaluation of new clinical techniques, and to provide an opportunity to medical students at all levels to answer important fundamental and clinical questions.

A large number and variety of individuals are required to look after the various academic and clinical programs that take place in the academic medical centre. This report deals with physicians in hospital based clinical departments, including issues such as their roles and responsibilities, methods of recruiting, arrangements for appointments, arrangements for evaluation, methods of accountability, and cost factors.

II. DEFINITION OF TERMS

The following is a list of definition of terms used in this report:

University: Dalhousie University

Teaching Hospital: One with shared purposes of academic and patient care activity.

Hospital: A teaching hospital of Dalhousie University.

Faculty: Faculty of Medicine, Dalhousie University.

University Department: An administrative unit of the Faculty of Medicine.

Hospital Department: An administrative unit of a teaching hospital.

Academic: Activity related to teaching and/or research.

Research: An organized effort to seek the answers to questions related to the unknown.

Clinical: Related to the care of patients.

Clinical Department: An administrative unit with responsibilities that include the care of patients.

Dean: Dean of the Faculty of Medicine.

University Department Head: Head of a university department.

Hospital Department Head: Head of a hospital department.

Full Time Clinical Faculty Member: One who has a university full time appointment (100%), an active staff appointment in an affiliated teaching hospital, where appropriate, and has been jointly appointed by the university and the affiliated teaching institution, and whose clinical, research, teaching, and administrative activities are approved by the department head. (See footnote Page 7 on Senate regulation.)

Part Time Clinical Faculty Member: One who has a university part time appointment (less than 100%), an active staff appointment in an affiliated teaching hospital, where appropriate, and has been jointly appointed by the university and the affiliated teaching institution.

Clinical Investigator: A clinical faculty member involved in clinical research.

Students: Individuals enrolled in Faculty of Medicine education programs, at an undergraduate, graduate, or continuing education level.

Private Practice: The practice of medicine where the details (including arrangements for patient care, billing, and collections) are arranged and controlled by the individual physician or by a group of physicians. (Independent of a university department practice plan.)

Practice Plan: A financial arrangement controlled at the departmental level, where revenues are primarily generated from the clinical activities of department members and the distribution of these revenues are based upon principles in accordance with departmental and Faculty guidelines.

III. REQUIREMENTS FOR CLINICAL FACULTY MEMBERS

Clinical faculty members are required to look after the most complex and demanding types of patient problems; to serve as teachers of physicians, general consultants and sub-specialists; and, as clinical investigators, to work in competition with peers world wide. As a result, these individuals require the broadest and most extensive education of any who work in the health care field. The best are highly sought after by other medical centres, so that the details of the individual's working arrangements must be competitive nationally.

The numbers required are based on the needs for clinical care of all appropriate patients on the one hand, and for all academic activities on the other. Estimates of requirements to meet patient care needs are relatively straightforward providing that the roles and responsibilities of the institutions for patient care are clearly identified. Similarly, the needs for educational programs can be identified as the size and quality of these can also be forecasted with reasonable accuracy. Estimating the numbers required for research is more difficult. All clinical faculty members should have some involvement in this area, but a minority will have their major role (greater than 50% of time) here. In this centre, however, the level of clinical research is recognized to be inadequate when compared with other centres of similar size in Canada and abroad, so that increased involvement of all clinical departments, and of virtually all divisions of clinical departments, in clinical research is justified.

Most full time clinical faculty members (and in some instances part time faculty members when negotiated with the hospital) should be located in the prime based hospital in order to allow proximity to their various activities. This issue-assumes increasing importance with the increase in the number and proportion of critically ill patients in teaching hospitals; with the increased need to provide for the administration of patient care activities and for academic patient related programs in hospitals; with the necessity to assure supervision of graduate students (an issue that becomes more important as the average degree of illness of the patient increases and as more complex technical procedures are used more frequently); and finally, because of the need to integrate patient care related research with other aspects of

clinical care. At the same time, educational needs will require more faculty time in ambulatory and community settings.

Support services must be supplied in order to maximize the opportunity of clinical faculty members to carry out their many duties and responsibilities as efficiently as possible. For all, this includes office space, office supplies and apparatus, and secretarial support. For those involved in clinical work, it involves examining room space for patients, apparatus for patient examinations, and support staff to assist in the utilization of these. For academic activities it means research space, space for teaching sessions, efficient data processing, and arrangements for appropriate support staff.

Remuneration must be at a level that is competitive with other Canadian medical schools. To a degree, arrangements must be competitive with local clinical practice.

Quantity and quality of work done must be evaluated. Progress and plans for change must be reviewed regularly. The entire system must assure accountability for the individual clinical faculty member and for the administrative units in which he/she works.

IV. RECRUITING

- The prime responsibility is jointly with the university department head for academic needs and for the hospital department head for clinical care needs.

- Long term (greater than one year) and short term (less than one year) plans for recruiting must be kept up to date.

- Long term and short term plans should be distributed to faculty and hospitals for information.

- Individual appointments require approval of faculty and hospitals according to specific hospital/university agreements.

  (There may be a requirement to expand on this section depending upon the future of the hospital/university agreements.)

V. REQUIREMENTS FOR APPOINTMENT

A. The appointment of a full time clinical faculty member requires:

1. An explicit description of total professional responsibilities for education, research, administration and clinical care; and thus, his/her responsibilities to the faculty and the affiliated teaching hospital(s).

2. An agreement that clinical care provided conform to senate regulation 4.2.1.*

* Senate regulations 4.2.1 states: "The University recognizes the value of academic staff members engaging in outside employment, or community service that enhances their professional, scholarly and scientific competence. Full time academic staff members may engage in activities of these sorts so far as they prove compatible with their university responsibilities and with the department Chairman or head, or Dean, as may be appropriate, to ensure that it is mutually agreed that the activities are compatible with the University responsibilities of the full time academic staff member."

3. An agreement as to remuneration (from the university, hospital**, clinical practice, and other sources) in accord with a practice plan developed by the university department and acceptable to the Faculty.

4. An agreement for disclosure of total professional earnings (gross) to the department head; and to the Dean upon specific request.

5. A description of the joint responsibilities of the Faculty and affiliated teaching institution for the provision of fringe benefits, secretarial support, office space and furnishings.

6. An arrangement for one prime based hospital.***

7. An agreement to annual review of the faculty member's roles, responsibilities and compensation by the university department head, according to a method agreed to by the Dean.

B. The appointment of a part time faculty member requires:

1. An explicit description of the clinical faculty member's responsibilities for education, research, administration and clinical care.

** In the case where a hospital provides a source of remuneration for full time academic clinicians, the hospital must agree that the activity being performed is appropriate for the proportion of time supported.

*** For some, at the discretion of the university department head, clinical appointments may not be restricted to one hospital, but in such instances hospitals concerned will concur in these details.

2. An agreement as to any compensation from the university, and as to any relationship of the faculty member to the department practice plan.

3. An agreement to annual review of the faculty member's roles, responsibilities, and compensation by the university department head, according to a method agreed to by the Dean.

VI. SPECIFIC NEEDS AND OBLIGATIONS OF FULL TIME CLINICAL FACULTY MEMBERS

A. Office:

- One office, normally in the prime based hospital.

- If a member shares work in two (or more) hospitals, the office would normally be provided in only one of these.

- Occasionally, members whose major functions are in research or administration may have office space provided in a faculty building rather than in a hospital.

- Provision of essential office apparatus (desk, telephone, dictation equipment, bookshelves, etc.)

B. Secretary:

- All members will have secretarial assistance as required to support their academic appointments.

- The quantity of this will depend on the individual. For university department heads this would often require more than one secretary, ordinarily one for university division heads, one for hospital department heads and less than one for hospital service heads or hospital unit directors. Two (or even three) clinical faculty members without administrative responsibility could ordinarily share one secretary.

- When secretaries are shared they will still be responsible for specific individual faculty members rather than working as a "pool".

C. Secretarial Space and Supplies:

- The location should be adjacent to the faculty member.

- Appropriate apparatus including desk, typewriter, and dictating equipment must be provided.

D. Research Space, Staff and Apparatus:

- Space required for the research activity agreed to must be provided.

- Housekeeping for such space (light, power, cleaning, etc.)

- Apparatus necessary to carry out research.

- Data processing apparatus.

- Staff to assist in basic functions.

E. Patient Care:

- Examining room space as required for responsibilities in this area.

- Examination apparatus necessary for the individual's clinical work.

- Support staff to assist in the utilization of this apparatus.

- Arrangements for efficient record keeping.

The patient care arrangements should facilitate investigation and management of all patients as efficiently as possible, regardless of whether they are inpatients or outpatients, move from one category to another, or stay in hostel type facilities. It is equally important that details relative to the patients such as making of appointments, travel arrangements, housing arrangements, and other special circumstances are looked after.

F. Compensation Package:

- Determination of the level of compensation consistent with departmental policy and responsibilities of the position is the responsibility of the university department head.

- Compensation must be competitive with peers in other Canadian medical centres and to a degree with individuals in private practice locally.

- All details of the initial compensation package should be available not only to the member and the university department head, but to the Dean. Division heads would also have access to this information if the department has a divisional structure.

- All arrangements should be reviewed annually by the member and the department head.

G. Clinical Practice Plan: *

All clinical departments must have a clinical practice plan. Principles include:

- Arrangements must be outlined in sufficient detail to allow understanding by individual members and by the faculty administration.

- All financial arrangements are the responsibility of the university department.

- Because all clinical earnings of full time faculty members must be included in the practice plan, full time faculty members have no private practice.

- Full time members must supply upon request, full details of total professional earnings to the university department head. Discretionary right is provided for Dean to request to receive all financial information of department and department members.

* This section refers to full time faculty only. Participation in the practice plan by part time faculty is possible, and has been referred to earlier on page 8.

- No university funds will be supplied to any full time clinical faculty member who does not supply such details to department head and their full time status will be renegotiated.

- The plan must be developed by the department and be acceptable to the Faculty.

- Clinical care generated funds will remain within the department.

- Arrangements for remuneration of part time faculty will be in relation to their specific roles and responsibilities.

H. Accountability:

1. The initial appointment. The details will be worked out by the individual member, the university department head, and will be agreed to by the Dean.

2. Roles, responsibilities and remuneration will be reviewed annually with the individual clinical faculty member by the university department head.

3. Full time faculty members must comply with the terms of the university/hospital agreement(s) of their respective hospital.

VII. COST SHARING ARRANGEMENTS

A. Faculty of Medicine:

1. Responsible for costs of recruiting and initial moving expenses.

2. Responsible for remuneration of faculty member (except for monies provided by hospitals for specific activities).

3. Responsible for office and secretarial needs of the head of the university department.

4. Responsible for the office and secretarial needs of the heads of university divisions.

5. Responsible for research space for non-hospital based research, including basic housekeeping for such (light, heat, cleaning, furniture, etc.)

B. Teaching Hospital:

1. Responsible for office and secretarial needs for the head of hospital department's services (or divisions).

2. Responsible for office and secretarial needs for hospital unit directors (diagnostic or therapeutic units).

3. Responsible for patient care facilities for both in and outpatients, including examining rooms, examination apparatus, and support staff in relation to these.

4. Responsible for research space for hospital based research with the basic housekeeping requirements related to this (light, heat, cleaning, furniture, etc.)

C. Faculty/Teaching Hospital Joint Responsibility:

1. Office and secretarial needs for clinical faculty members with both faculty and hospital administrative responsibilities.

2. Office and secretarial needs for clinical faculty members without administrative responsibilities.

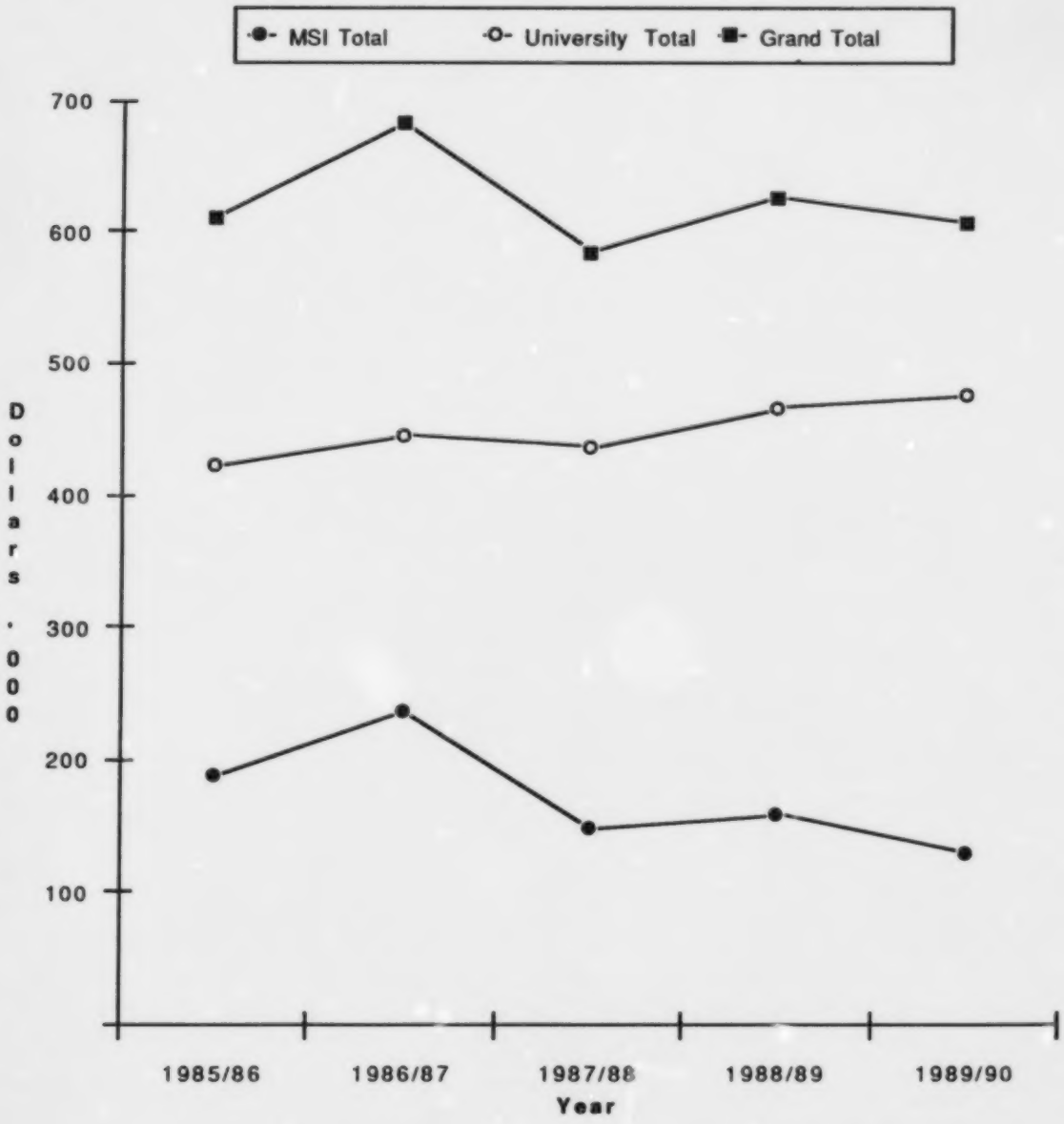
3. Essential apparatus for academic activities.

4. Support staff for academic activities.

Appendix C

TRENDS IN SOURCES OF OPERATING FUNDS BY DEPARTMENT 1985/86 - 1989/90

Sources of Funds to Operate Anaesthesia Department
Dalhousie Faculty of Medicine
1985/86 - 1989/90



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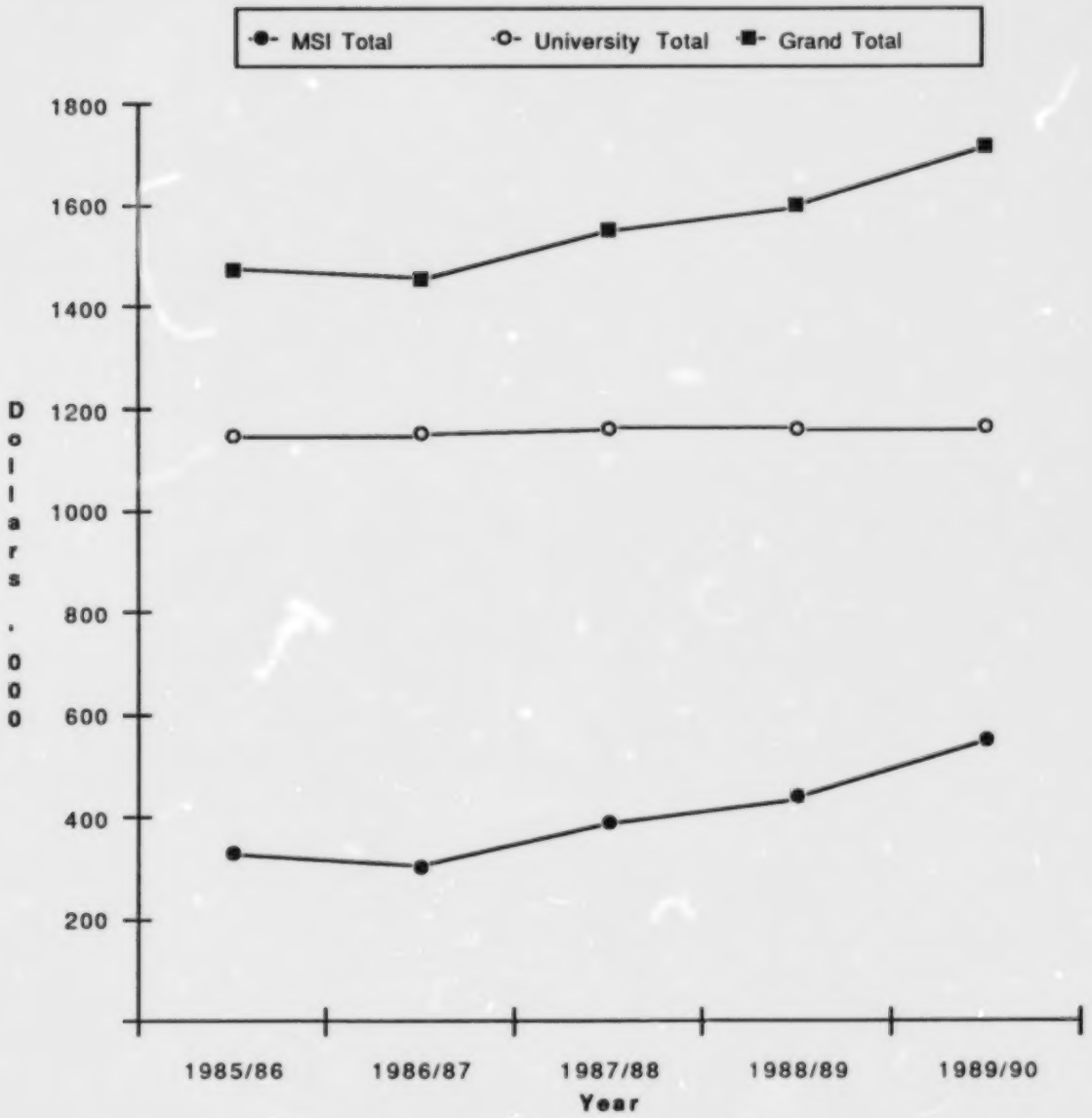
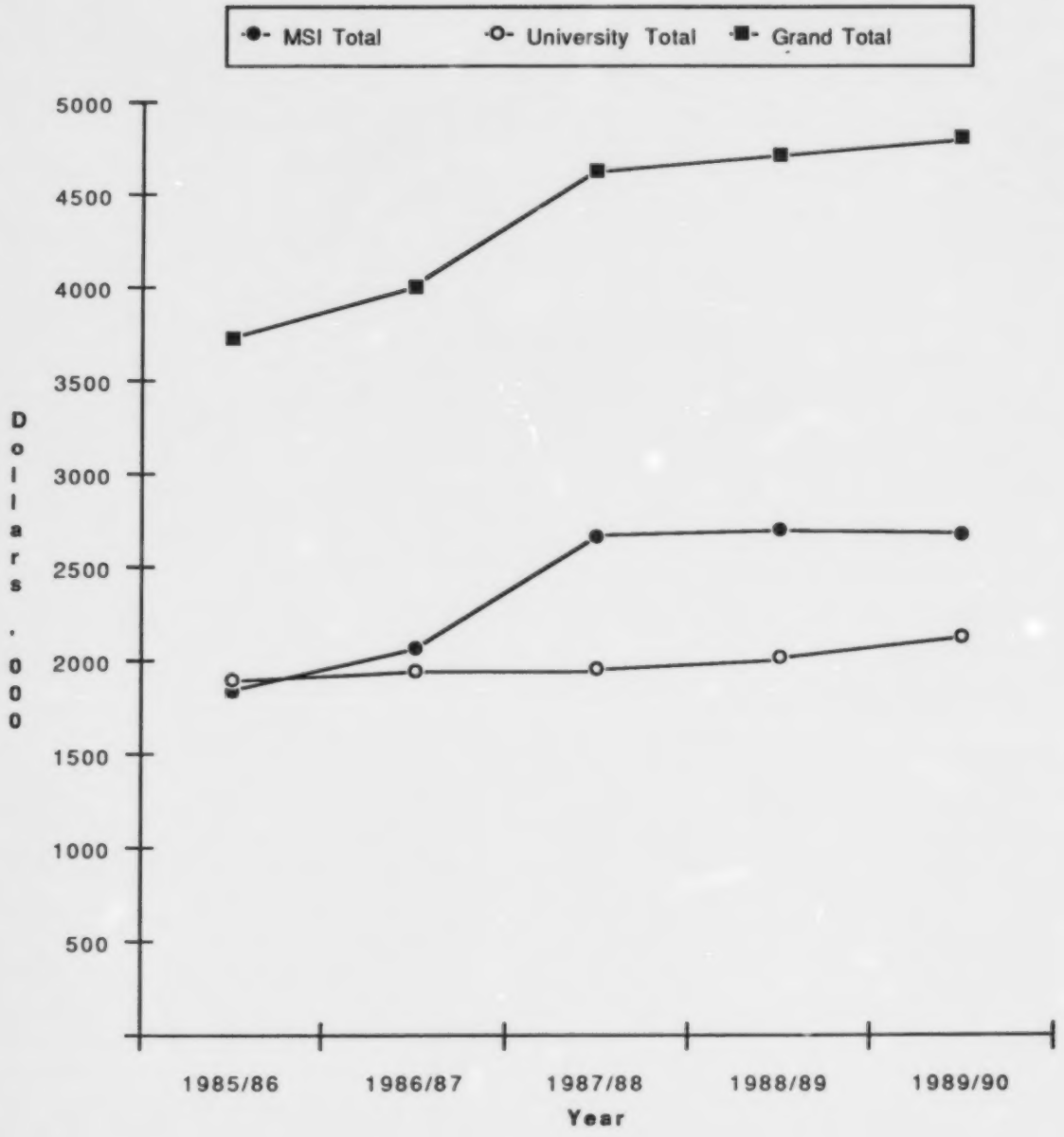
Dalhousie Faculty of Medicine
1985/86 - 1989/90



Sources of Funds to Operate Medicine Department
Dalhousie Faculty of Medicine
1985/86 - 1989/90



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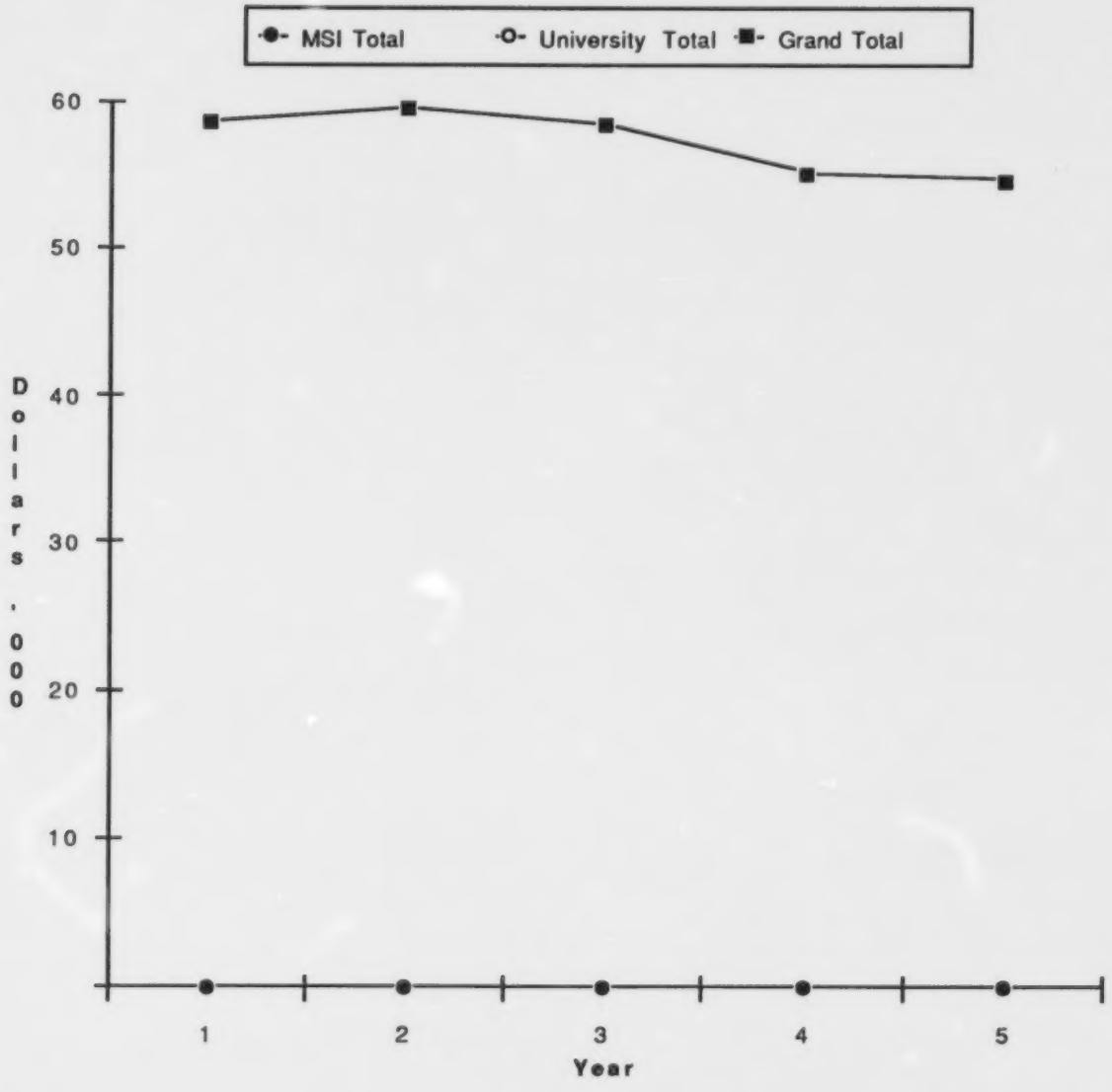
Dalhousie Faculty of Medicine
1985/86 - 1989/90



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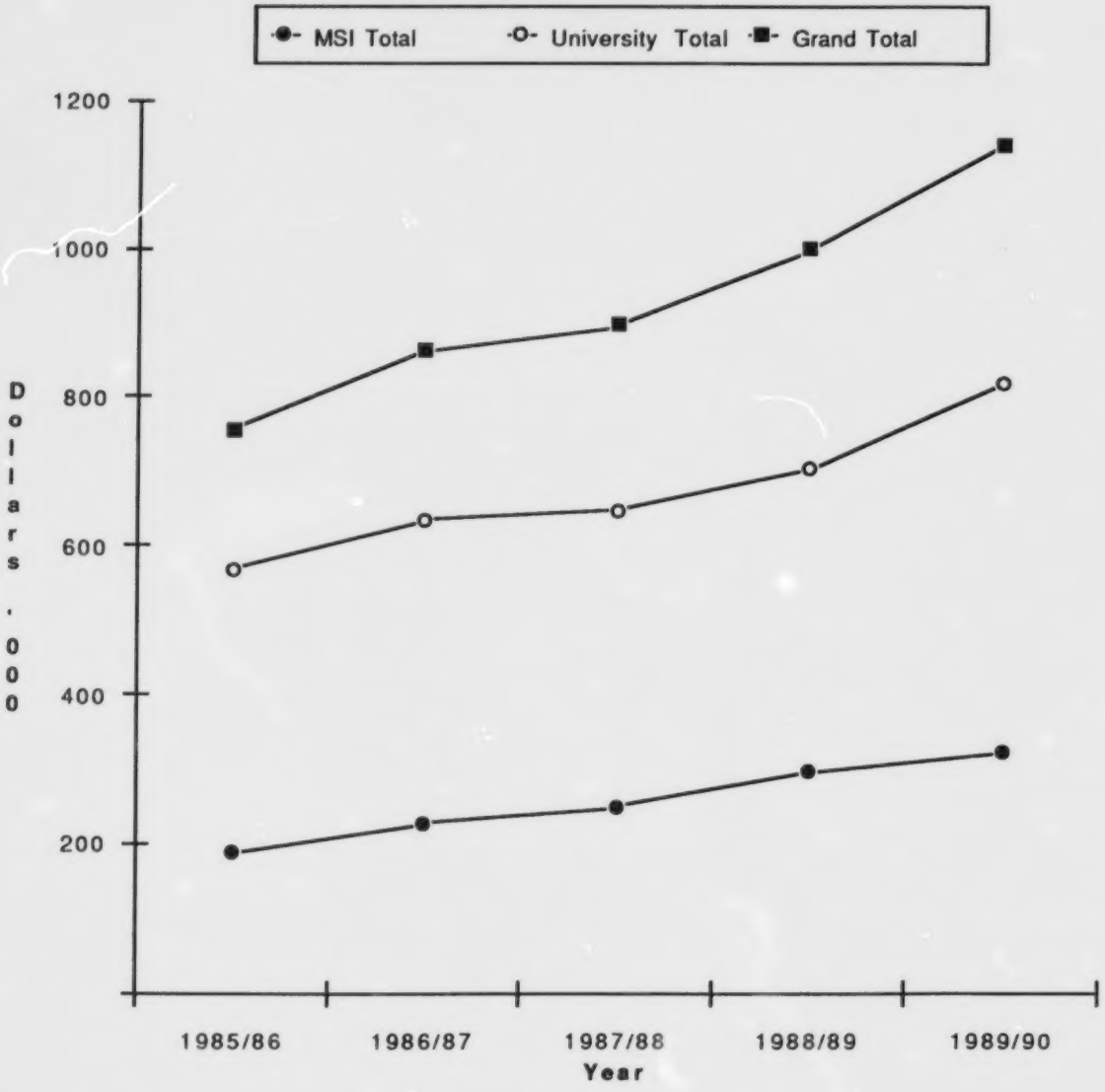
Dalhousie Faculty of Medicine
1985/86 - 1989/90



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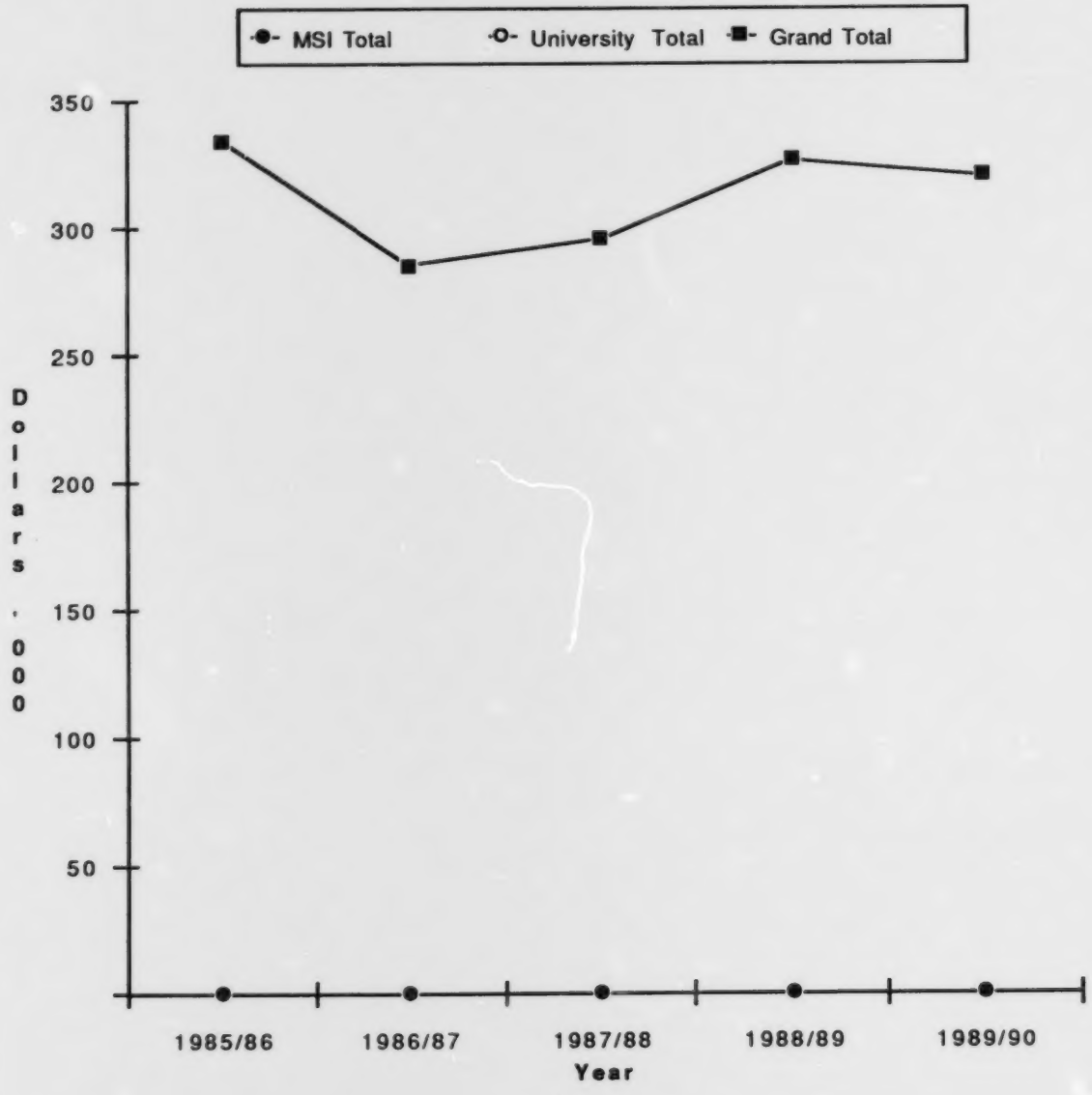
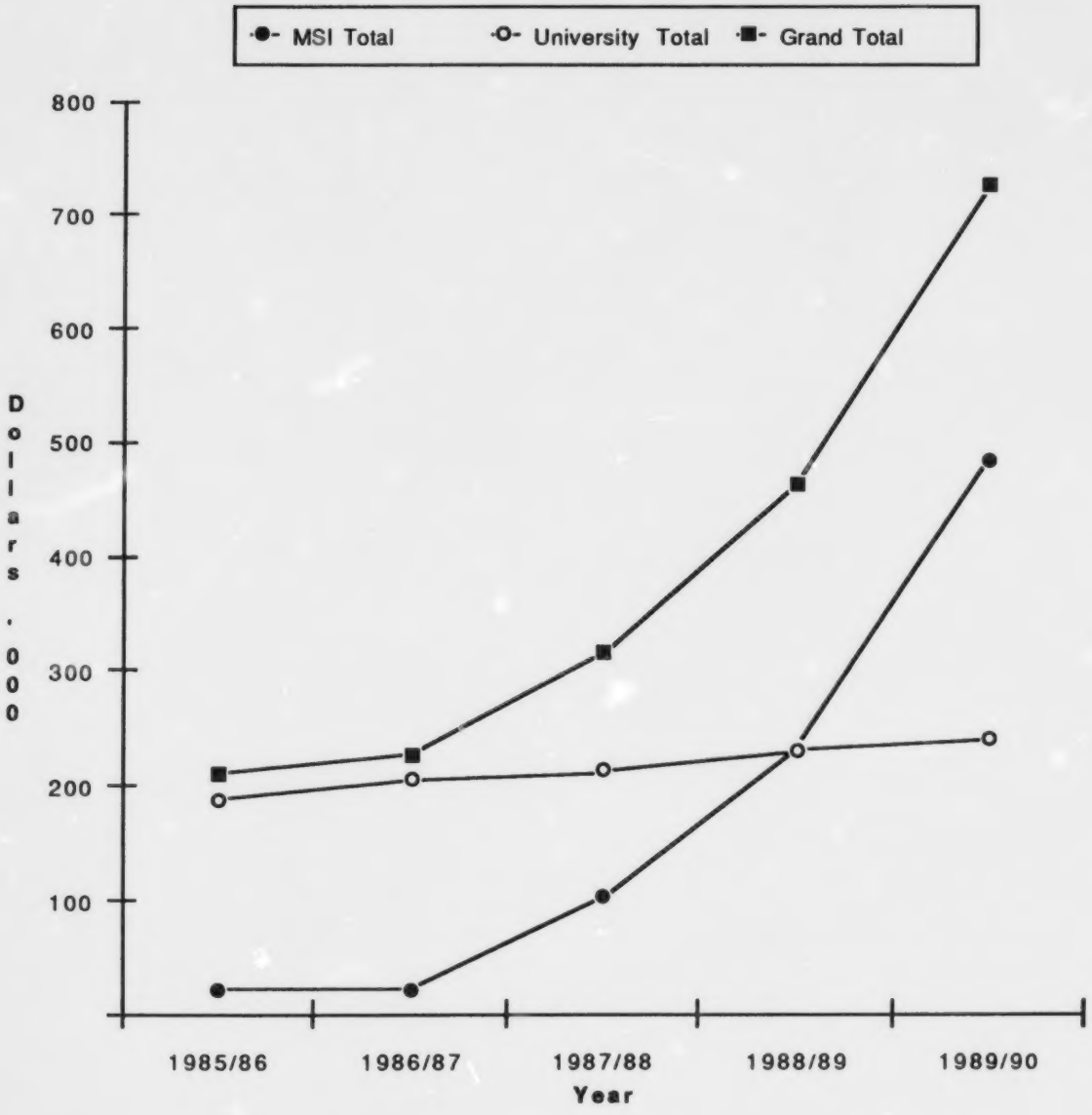
Dalhousie Faculty of Medicine
1985/86 - 1989/90



Sources of Funds to Operate Otolaryngology Department
Dalhousie Faculty of Medicine
1985/86 - 1989/90



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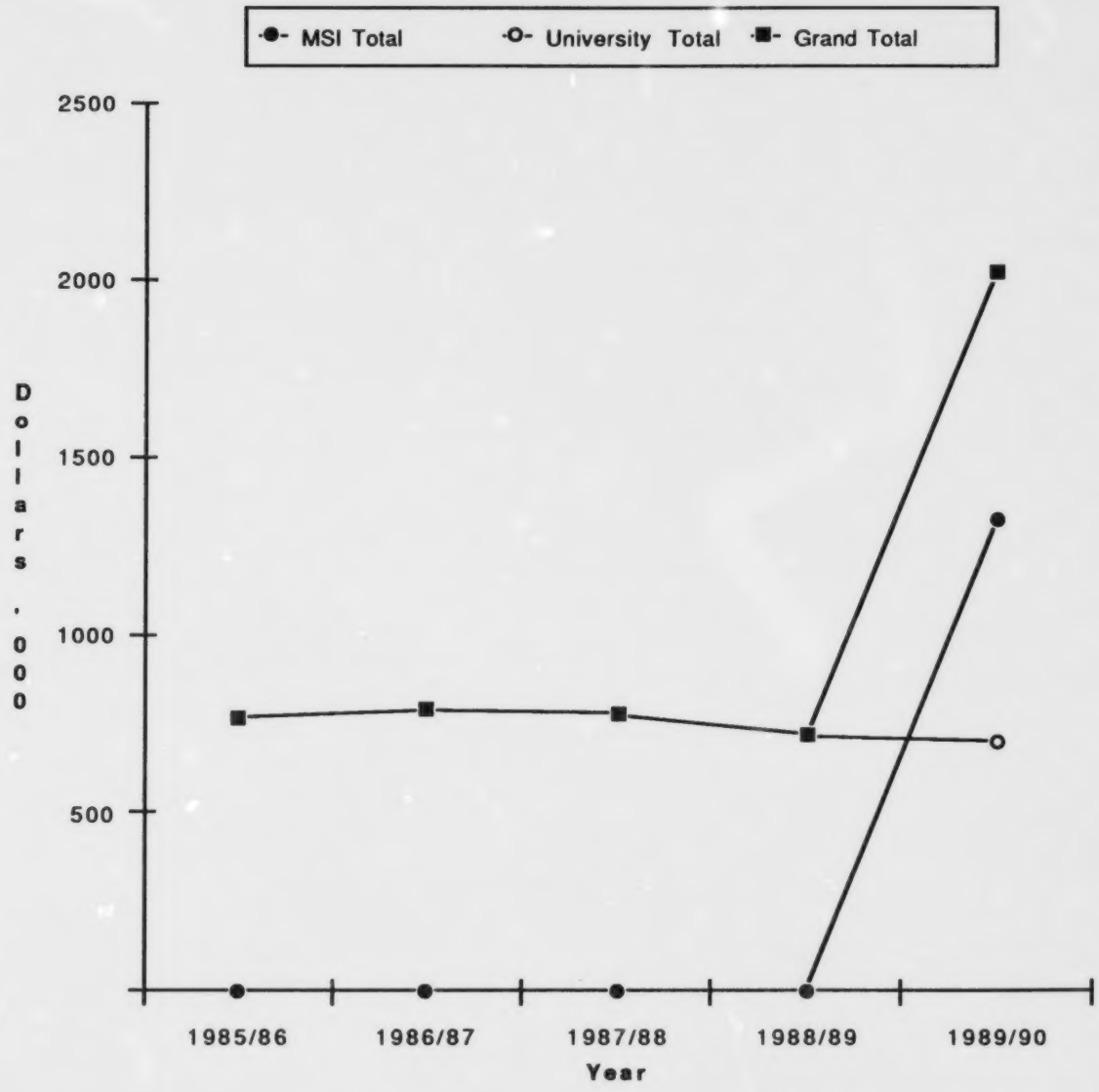
Dalhousie Faculty of Medicine
1985/86 - 1989/90



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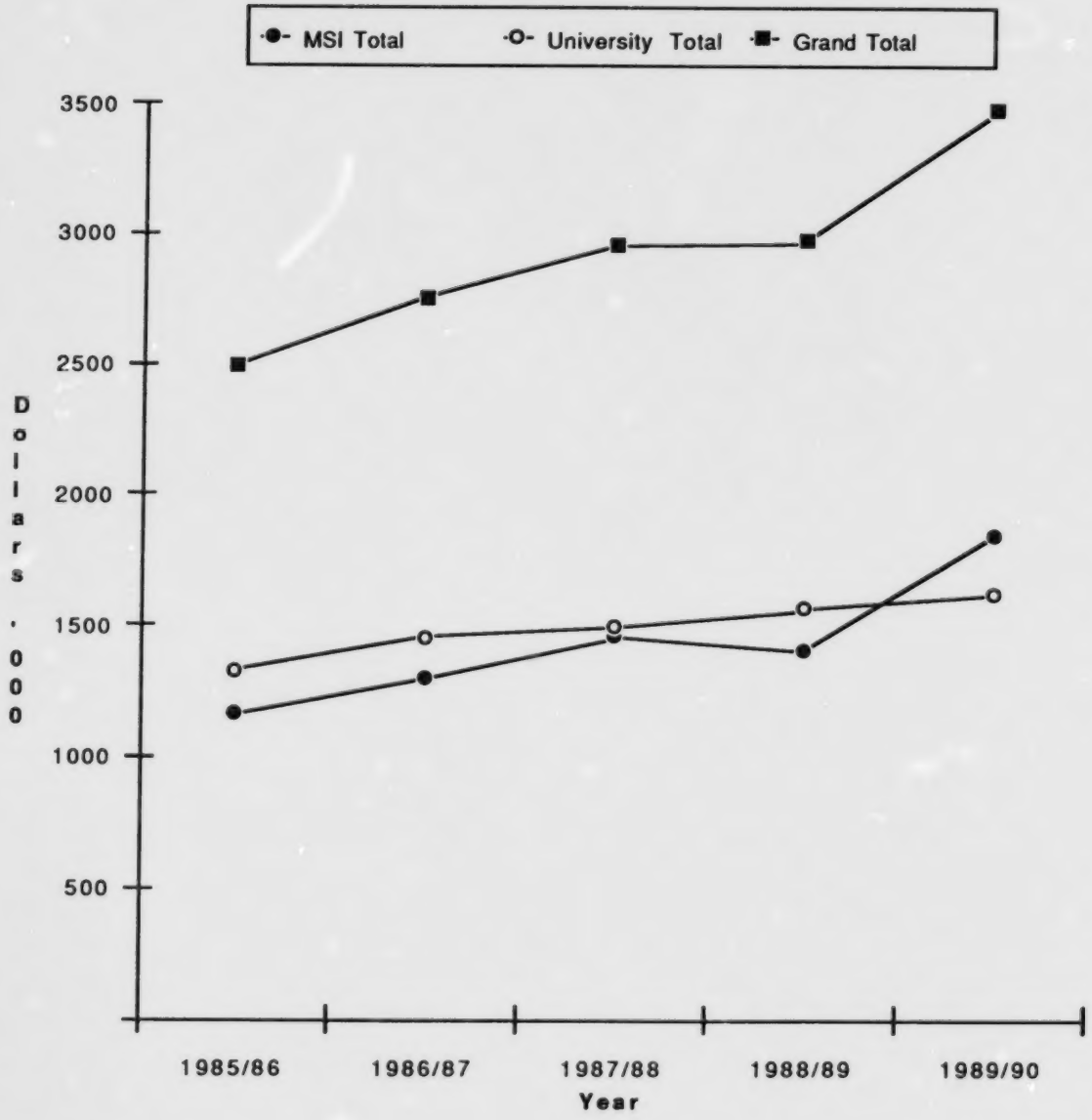
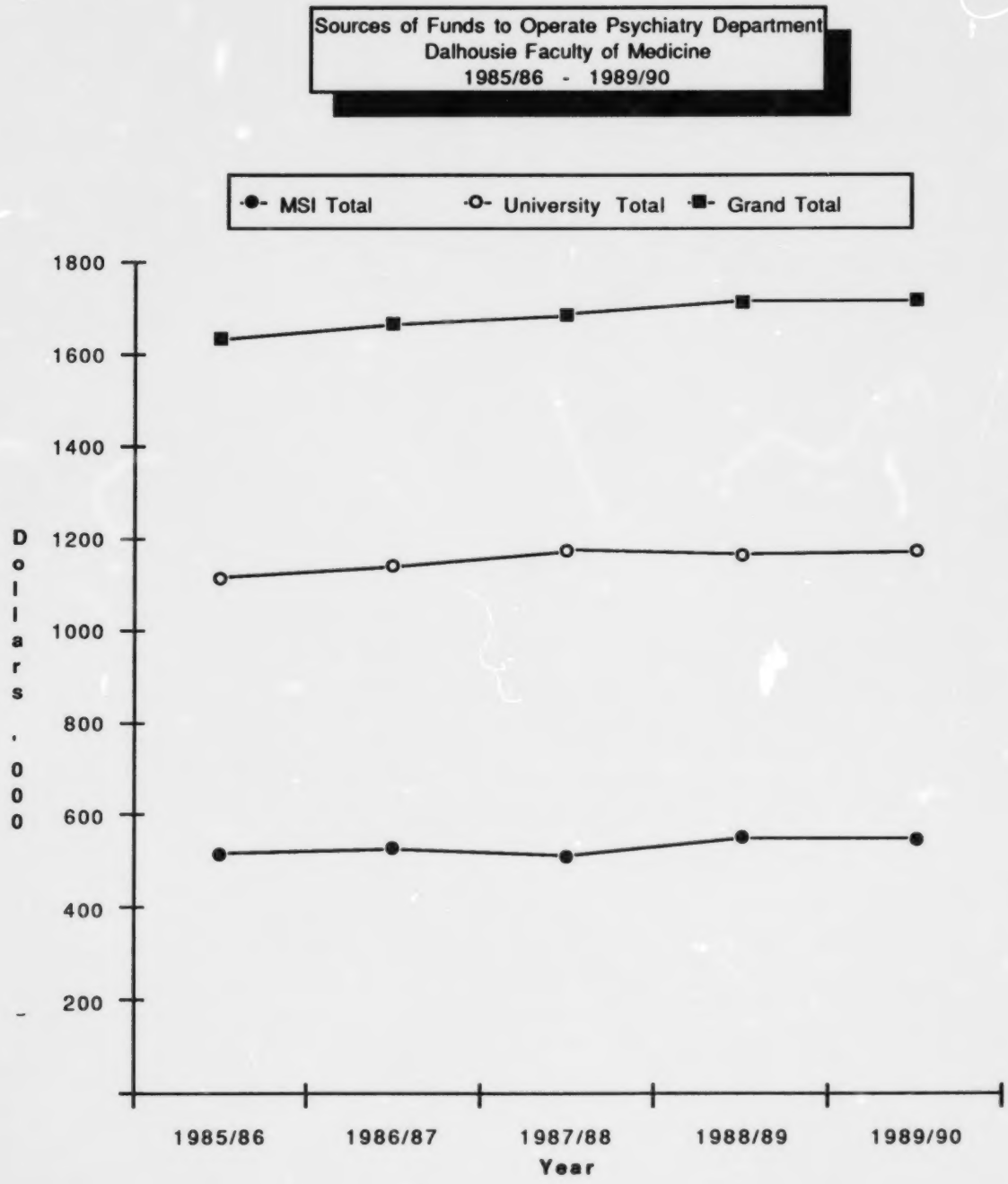
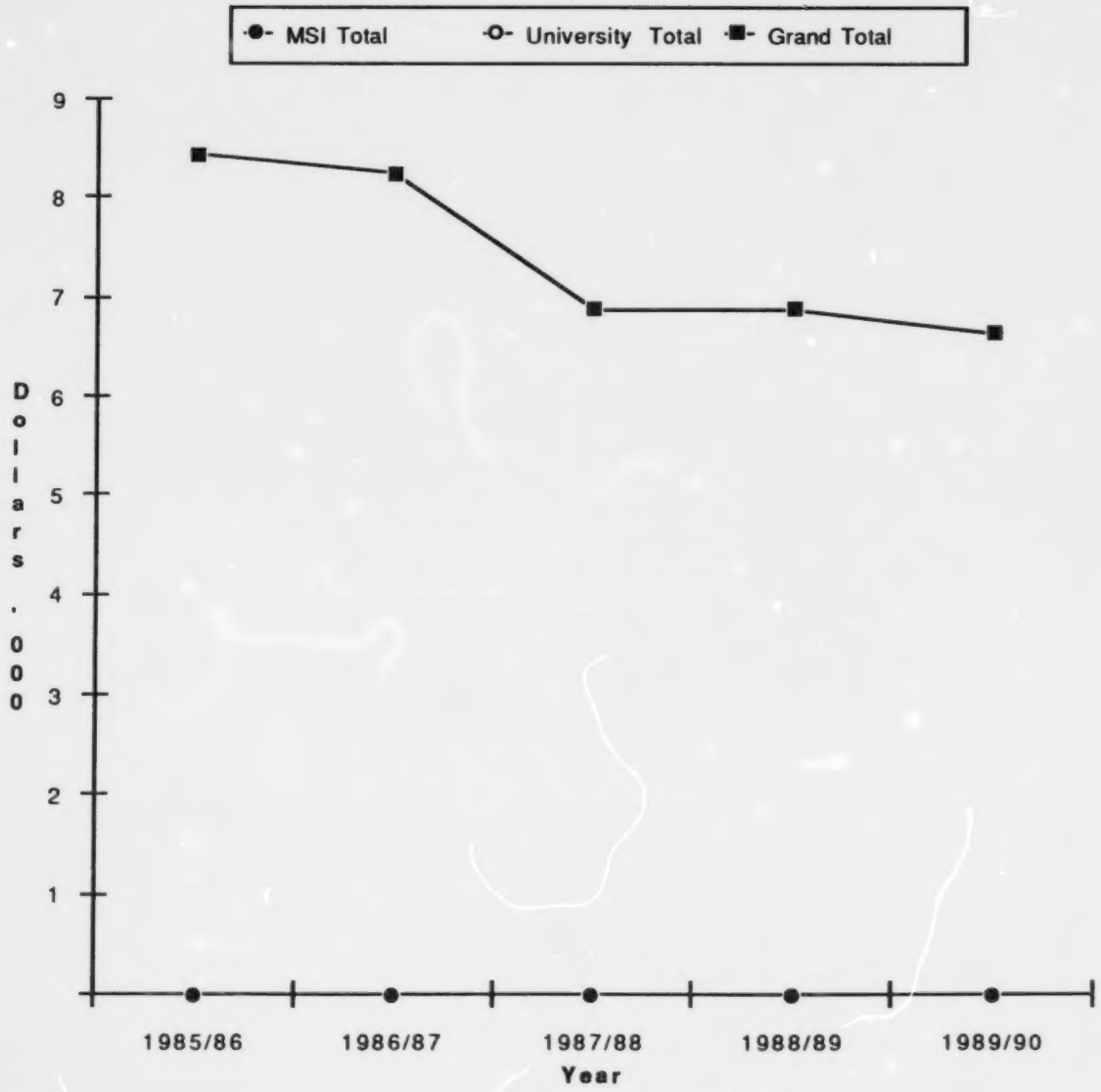
Dalhousie Faculty of Medicine
1985/86 - 1989/90




Sources of Funds to Operate Psychiatry Department
Dalhousie Faculty of Medicine
1985/86 - 1989/90
MSI Total
University Total
Grand Total
1800
1600
1400
1200
1000
800
600
400
200
Dollars .000
1985/86
1986/87
1987/88
1988/89
1989/90
Year

Sources of Funds to Operate Radiation Oncology Department
Dalhousie Faculty of Medicine
1985/86 - 1989/90



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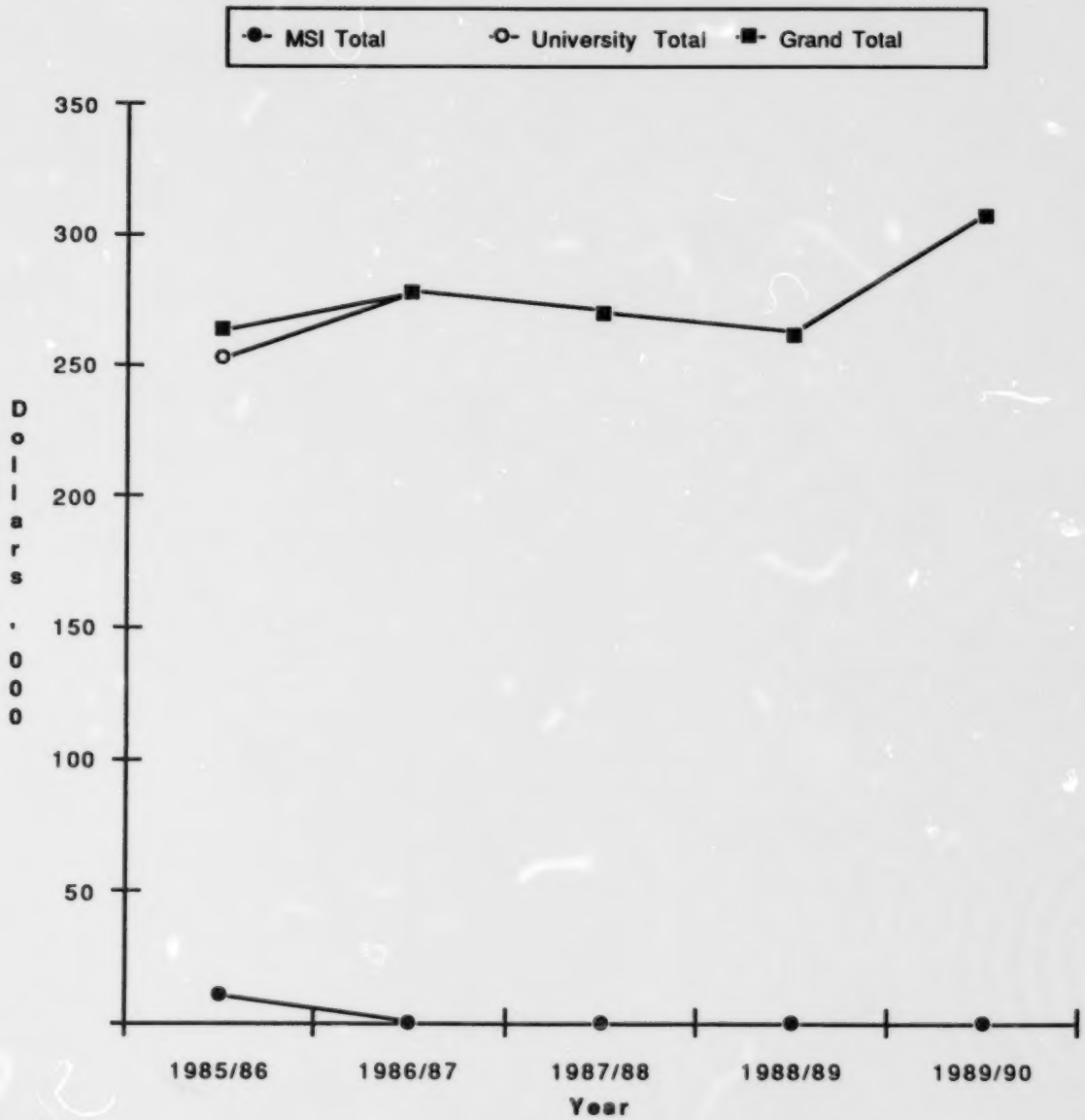
Dalhousie Faculty of Medicine
1985/86 - 1989/90



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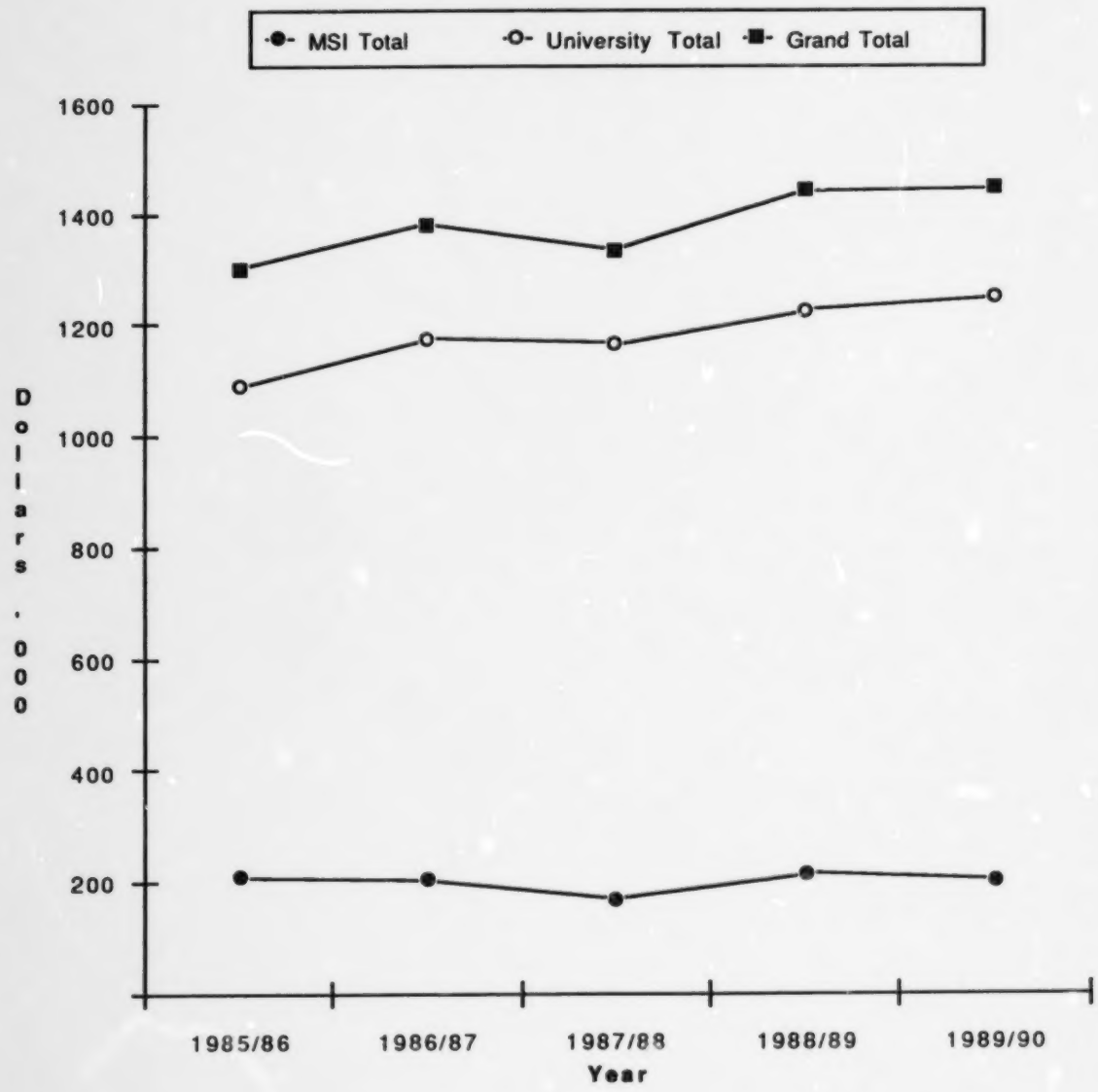
Dalhousie Faculty of Medicine
1985/86 - 1989/90



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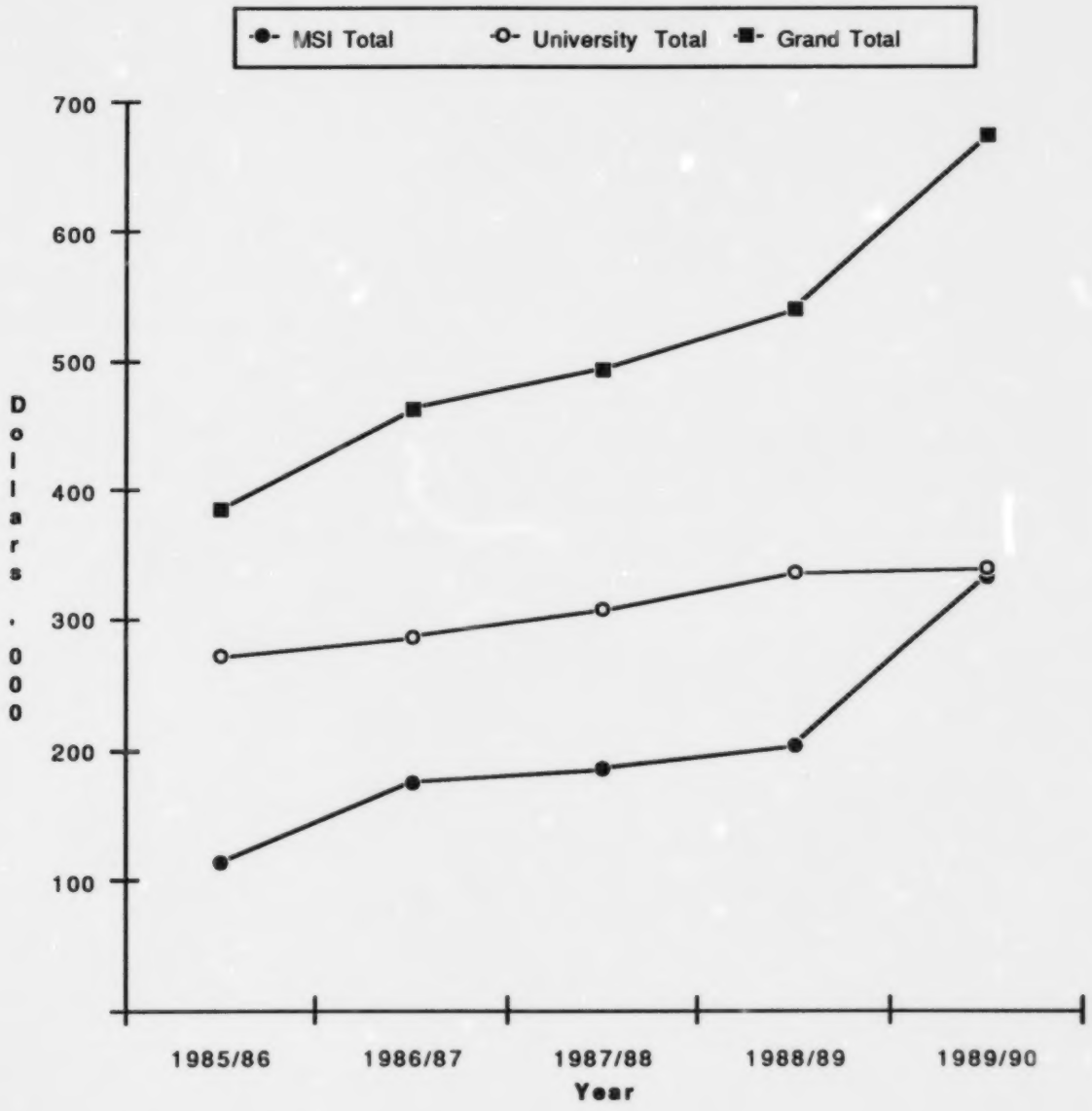
Dalhousie Faculty of Medicine
1985/86 - 1989/90



Stevenson Kellogg Ernst & Whinney
Management Consultants

APPENDIX TO PRACTICE PLANS AT DALHOUSIE UNIVERSITY FACULTY OF MEDICINE

UTILIZATION TRENDS

Member of Ernst & Whinney International

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I

INTRODUCTION

In our review of practice plans of Dalhousie Faculty of Medicine departments, a question arose concerning the utilization patterns of Dalhousie clinical faculty members. As a result, the Nova Scotia Royal Commission on Health Care requested Stevenson Kellogg Ernst & Whinney to investigate changes in patient load, services and income over time for Dalhousie faculty members versus similar specialists practicing in Nova Scotia outside the university.

To undertake this work, we obtained data on patients, services and payments from MSI and calculated ratios and averages. Because diagnostic imaging and laboratory services are funded through hospitals, we have been unable to include these specialties in our analysis. We have also excluded family medicine from our analysis because of the high volume of this group.

This report presents our findings.

II

UTILIZATION TRENDS FOR SPECIALISTS IN NOVA SCOTIA WITH AND WITHOUT DALHOUSIE AFFILIATION (1985/86 - 1988/89)

This chapter presents our findings in changes in physicians by specialty, patients per physician, services per physician and earnings.

A. TOTAL FEES PAID TO SPECIALISTS INCREASED FOR FULL-TIME, PART-TIME AND NON-DALHOUSIE PHYSICIANS.

Exhibit II-1 shows the number of physicians paid and total dollars paid by for full-time and part-time Dalhousie faculty and non-Dalhousie specialists for 1985/86 and 1988/89. In 1985/86 a total of 388 specialist physicians with either full or part-time appointments at Dalhousie were paid $50,580,000. In 1988/89, 349 specialist faculty members were paid $55,360,000, for an increase of 9%.

When we examine the distribution of manpower within Dalhousie, we see a shift in manpower from part-time to full-time status. In 1985/86, 35% of faculty were full-time. This increased to 45% in 1988/89. As a result of the shift towards more full-time faculty the amount of fees paid to this group increased by 27%, while that to part-time faculty increased by only 4%. When we examine average payments per physician, however, (Exhibit II-2) average earnings per GFT increased by only 5%, while average earnings per part-time faculty increased by 38%.

During the period, the number of specialists in the province not affiliated with Dalhousie decreased by 17%; however, the total earnings of this group increased by 48%. As a result overall average earnings increased from $130,000 in 1985/86 to $232,000 in 1988/89.

In comparing the data base for the two periods under review, caution must be exercised. Unfortunately, time did not permit a name-by-name review of the 1985/86 data base. We had previously undertaken such a review for 1988/89 and are confident that it now accurately reflects payments to physicians in full-time practice. Since we could not undertake as extensive a review of the 1985/86 data base, we eliminated all physicians providing less than 50 services in the year.

Although the accuracy of comparisons between years for the total physician group, and for the non-Dal group is a problem, we believe the comparisons for full-time and part-

time faculty are reasonably representative. We have therefore focused the majority of our comments on these two groups, with comments on non-Dal physicians where possible.

B. PAYMENTS TO FULL-TIME FACULTY MEMBERS OF THE DEPARTMENT OF MEDICINE INCREASED WHILE PAYMENTS TO PART-TIME MEMBERS DECREASED.

The number of full-time faculty members in the Department of Medicine (including neurology, dermatology and physical medicine) increased from 43 in 1985/86 to 51 in 1988/89. In contrast, the number of part-time faculty decreased from 49 to 28.

Within Medicine, the number of patients and services per full-time faculty member decreased, although the number of patients per full-time neurologist increased. Average incomes increased with the exception of dermatology. For part-time faculty in the Department of Medicine, however, the average patients, services and incomes increased in all groups. This may be largely due to the decrease in the number of faculty in this group.

In comparing average services and patients, it is not surprising that part-time faculty see more patients and provide more services than do full-time faculty. However, the reason for the very significant increase in the number of patients per physician for part-time faculty is not readily understood. In addition, part-time faculty see more patients, on average, than non-Dal physicians, where the increase during the period was substantially less. Unless there is a significant manpower shortage in Halifax in this specialty, we cannot explain either the discrepancy in rates or the significant growth in the rate for part-time faculty.

C. THE GROWTH IN PEDIATRIC UTILIZATION AFFECTS BOTH PART-TIME FACULTY AND NON-DAL PHYSICIANS.

The total fees paid to pediatricians increased for all three groups. However, for full-time faculty, average fees increased by only 8%, while for part-time faculty and non-Dal physicians, the increase was 70% and 53%, respectively. Some of this may be explained by the shift from part-time to full-time faculty and by growth in referrals to pediatricians outside Halifax.

Comparisons of patients per physician show a similar pattern to that of Medicine. Unlike Medicine, however, the highest growth occurred in the non-Dal group - which is approaching the level of Dal part-time faculty. The increase in services per physician is less dramatic and in both years the Dal part-time and non-Dal groups are reasonably close.

D. SERVICES AND PATIENTS PER FULL-TIME GENERAL SURGEON INCREASED BUT AVERAGE FEES REMAINED STABLE.

Services and patients per physician increased for full-time general surgeons, while average fees remained static. This suggests that full-time faculty must provide more clinical service in order to generate stable incomes.

By contrast, part-time faculty average fees increased by 38%. Like other departments, this may be due to a reduction in the number of staff. Similarly, for the non-Dal group, average patients and services declined but average incomes increased substantially - by 73%. We are concerned, however, that the non-Dal numbers for 1985/6 may be overstated and hence have not drawn further conclusions from this information.

In any event, the current averages of services and patients for part-time faculty and non-Dal surgeons are reasonably similar - as we would expect.

E. ORTHOPEDIC SURGERY PATTERNS HAVE NOT CHANGED DRAMATICALLY.

The number of orthopedic surgeons registered with the PMB increased by two but the total for which income was reported declined by one. Like general surgery, average income remained almost static for full-time faculty. While services per full-time physician increased, patients per physician decreased.

The number of part-time faculty declined, but total earnings of the group increased, resulting in a 37% increase in average earnings. This was reasonably in line with the 28% increase in services per physician.

In this group the practice patterns of the three groups are roughly similar in terms of services per physician. The largest increase, however, occurred in the part-time faculty group.

F. FOR UROLOGY, THE LARGEST AVERAGE FEE INCREASES OCCURRED IN THE NON-DAL GROUP.

The number of patients and services per physician increased somewhat for full-time faculty, as did average earnings. However, average earnings increased at much greater rates for both part-time faculty and non-Dal physicians (45% and 68%, respectively). We

have not been able to explain this increase for the non-Dal group, since both patients and services per physician declined.

Patients and services per physician across the three groups are reasonably similar in urology.

G. INCREASES IN AVERAGE SERVICES PER PART-TIME FACULTY LED TO SUBSTANTIAL AVERAGE FEE INCREASES IN OBSTETRICS.

The number of full-time faculty in obstetrics increased by two while the number of part-time faculty decreased by four. This resulted in average fee increases of 8% for full-time faculty and 51% for part-time faculty. The increase for the non-Dal group was almost as high at 45%.

Both full and part-time faculty saw an increase in patients and services per physician. However, a dramatic increase (63%) in services per part-time physician probably fully explains the substantial average fee increase. In 1985/86 services per physician for part-time faculty were 74% higher than for full-time faculty. In 1988/89 the difference had increased to 151% - but the difference in average patients per physician was 115%. Given that full-time faculty generally care for the most complex patients, we suggest this difference warrants further investigation.

We cannot explain why average incomes for non-Dal physicians increased while average services and patients decreased.

H. AVERAGE FEES FOR ANAESTHETISTS INCREASED IN ALL GROUPS.

Average fees for full-time faculty increased by 13%. Average fees for part-time and non-Dal groups were similar at 57% and 56%, respectively.

For full-time faculty, services per physician increased, while patients per physician decreased. For part-time faculty, both services and patients per physician increased substantially. In 1985/86 average services per part-time faculty member were below that per full-time member (and only half that of non-Dal). By 1988/89 the average services per part-time faculty were higher than for full-time faculty (by 29%) - but still lower than non-Dal.

Again, we are unable to explain why the non-Dal group increased average earnings despite a decline in services.

I. AVERAGE PATIENTS, SERVICES AND EARNINGS HAVE DECLINED FOR FULL-TIME MEMBERS OF THE DEPARTMENT OF OPHTHALMOLOGY.

The Department of Ophthalmology increased the number of full-time faculty from four to five, while part-time faculty decreased from 17 to 13. This change may at least partly explain the 37% decline in services per full-time member and the 41% increase per part-time faculty. A small decline in average services and patients occurred for non-Dal ophthalmologists.

In 1985/86, the difference in patients and services per physician between part-time and full-time faculty appeared within reason and was also similar to ophthalmologists outside Halifax. However, the rapid increase, coupled with the differences in services per patient for full-time and non-Dal physicians, suggests that the reasons for such high utilization rates amongst part-time faculty should be further investigated.

J. IN PSYCHIATRY, PART-TIME FACULTY EXPERIENCED THE LOWEST AVERAGE FEE INCREASE.

Dalhousie faculty members - both full and part-time - decreased their average patients per physician and services per physician. However, both increased their average earnings - full-time at a rate higher than part-time.

In contrast, services and patients per physician increased for non-Dal psychiatrists. This was reflected in an average fee increase of 19%.

K. PHYSICAL MEDICINE EXISTS ONLY IN HALIFAX.

Physical medicine is included in the Department of Medicine at Dalhousie. Average services, patients and earnings declined for both groups, we suspect largely due to an increase in manpower in this small specialty. In addition, the two full-time faculty members spend a significant portion of their time in research activities.

L. AS A SMALL DEPARTMENT, NEUROSURGERY DOES NOT SHOW DEFINITE PATTERNS.

With only one full-time faculty member, and that a recent change, we have no comment.

M. FULL-TIME FACULTY IN OTOLARYNGOLOGY HAVE REDUCED AVERAGE SERVICES, PATIENTS AND EARNINGS.

Average fees for full-time members of the Department of Otolaryngology declined by 45% - a reflection of decreases in both average services and patients and an increase in manpower. By contrast, average services, patients and earnings of part-time faculty decreased but their numbers also decreased.

N. OUR ANALYSIS DOES NOT SUPPORT THE HYPOTHESIS THAT FULL-TIME FACULTY ARE GENERATING INCREASED UTILIZATION.

Although full-time faculty have increased in numbers, these have almost always been offset by reductions in part-time faculty. In some cases, the reductions in part-time faculty exceeded the increases in full-time faculty.

A small number of departments have substantially increased their rates of average patients, services and earnings for part-time faculty. We have suggested that these should be reviewed further. However, in general, the data supports the discussion in the report on practice plans that-showed that full-time faculty earned less, on average, than part-time faculty and non-Dal specialists. Furthermore, average earnings of full-time faculty in several departments declined during the period, while incomes for part-time faculty rose significantly in most departments.

Exhibit II-1
Total fees paid by specialty

Dept/Specialty	GFT's 85/86 # of physicians	GFT's $ pd. 000's	GFT's 88/89 # of physicians	GFT's $ pd. * 000's	Part-time 85/86 # of physicians	Part-time $ pd. 000's	Part-time 88/89 # of physicians	Part-time $ pd. 000's	Non-Dal 85/86 # of physicians	Non-Dal $ pd. 000's	Non-Dal 88/89 # of physicians	Non-Dal $ pd. 000's
10/Medicine	38	2926	43	4004	39	5157	21	4374	35	4529	27	5539
11/Neurol	4	241	6	365	4	825	3	715	-	-	-	-
12/Pediatrics	22	1587	28	2172	29	2043	22	2610	8	839	9	1450
13/Dermatology	1	97	2	137	6	1170	4	1069	-	-	-	-
20/General Surgery**	15	1843	15	1848	28	4455	16	3498	55	9298	25	7289
25/Ortho Surgery	4	1054	4	1072	11	1148	8	2046	1	241	3	946
26/Urology	5	927	7	1549	8	1172	4	845	5	1013	2	684
30/Obs/Gyn	9	963	11	1275	15	3233	11	3586	16	2563	7	4626
40/Anaesthesia	8	893	6	755	40	4082	38	6096	18	1977	17	2922
51/Ther. Radiol.	1	20	1	46	4	110	4	214	-	-	-	-
61/Ophthalmology	4	776	5	748	17	4329	13	4801	13	2567	13	4024
70/Psychiatry	12	841	16	1371	31	3596	26	3155	16	2100	35	5457
95/Phys. Med.	1	54	2	30	4	865	7	1106	-	-	-	-
22/Thoracic Surgery	-	-	-	-	1	57	4	966	1	7	-	-
23/Neurosurgery	-	-	1	206	4	816	4	791	1	123	1	158
24/Plastic Surgery	-	-	-	-	7	1477	6	1480	-	-	2	408
62/Otolaryngology	3	782	4	570	12	1941	7	1818	6	1542	4	1511

All totals exclude family medicine.

*For purposes of comparison, out-of-province fees excluded from total

**Includes vascular

Stevenson Kellogg Ernst & Whitney

Exhibit II-2

Average fee per physician

Dept/Specialty	GFT's 85/86 Ave $ per physician	GFT's 88/89 Ave. $ per physician	GFT's % change	Part-time 85/86 Ave. $ per physician	Part-time 88/89 Ave. $ per physician	Part-time % change	Non-Dal 85/86 Ave. $ per physician	Non-Dal 88/89 Ave. $ per physician	Non-Dal % change
10/Medicine	77	93	+21	132	208	+58	129	205	+59
11/Neurol	60	61	+2	206	238	+16	-	-	
12/Pediatrics	72	78	+8	70	119	+70	105	161	+53
13/Dermatology	97	69	-29	195	267	+37	-		
20/General Surgery**	123	123	-	159	219	+38	169	292	+73
25/Ortho Surgery	263	268	+2	187	256	+37	241	315	+31
26/Urology	185	221	+19	146	211	+45	203	342	+68
30/Obs/Gyn	107	116	+8	216	326	+51	160	232	+45
40/Anaesthesia	112	126	+13	102	160	+57	110	172	+56
51/Ther. Radiol.	20	46	+130	27	54	+100	-		
61/Ophthalmology	194	150	-23	255	369	+45	197	309	+57
70/Psychiatry	70	86	+23	116	121	+4	131	156	+19
95/Phys. Med.	54	15	-73	173	158	-9	-	-	
22/Thoracic Surgery	-	-		57	242	+325	7	-	-
23/Neurosurgery	-	206	-	204	198	-3	123	158	+28
24/Plastic Surgery	-	-		211	247	+17	-	204	-
62/Otolaryngology	261	143	-45	162	260	+60	257	378	+47
TOTAL	102	107	+5	144	198	+38	130	232	+79

Exhibit II-3
Patients per physician

Dept/Specialty	GFT's		Part-time		Non-Dal	
	85/86 # of patients per physician	88/89 # of patients per physician	85/86 # of patients per physician	88/89 # of patients per physician	85/86 # of patients per physician	88/89 # of patients per physician
10/Medicine	530	520	960	1260	840	870
11/Neurol	590	650	2190	2310	-	310
12/Pediatrics	510	480	1230	1490	760	1130
13/Dermatology	1410	960	2180	2360	-	2420
20/General Surgery	480	620	900	1010	1230	1060
25/Ortho Surgery	1840	1640	1700	2140	1730	1790
26/Urology	1220	1360	910	1290	1260	1030
30/Obs/Gyn	840	960	1640	2060	1170	910
40/Anaesthesia	690	630	760	1020	1170	1000
51/Ther. Radiol.	280	700	390	980	-	500
61/Ophthalmology	2040	1370	3480	4530	2640	2280
70/Psychiatry	240	210	240	230	250	290
95/Phys. Med.	310	160	1200	1120	-	-
22/Thoracic Surgery	-	-	-	900	70	1390
23/Neurosurgery	-	910	1170	1050	1160	1070
24/Plastic Surgery	-	-	1770	1710	-	1570
62/Otolaryngology	2460	2200	1560	2270	2270	2200

Exhibit II-4
Services per physician

Dept/Specialty	GFT's			Part-time			Non-Dal		
	85/86 services per physician	88/89 services per physician	% change	85/86 services per physician	88/89 services per physician	% change	85/86 services per physician	88/89 services per physician	% change
10/Medicine	3100	1930	-38	N/A	4980	-	5530	5760	+5
11/Neurol	1810	1770	-2	4100	4980	+21	2890	2930	+1
12/Pediatrics	1360	1360	0	3360	3550	+6	-	390	
13/Dermatology	1960	1820	-7	2460	2940	+20	2280	2860	+25
20/General Surgery	3580	2340	-35	2180	7090	+225	-	5240	
25/Ortho Surgery	1810	2060	+14	3060	3020	-1	4170	3590	-14
26/Urology	3350	3440	+3	3000	3850	+28	2900	3480	+20
30/Obs/Gyn	3590	3730	+4	2470	3310	+34	3860	3320	-14
40/Anaesthesia	2340	2650	+13	4080	6650	+63	2860	2350	-18
51/Ther. Radiol.	1300	1360	+5	1210	1750	+45	2570	1910	-26
61/Ophthalmology	280	1670	+496	790	2140	+171	-	550	
70/Psychiatry	4200	2630	-37	6040	8490	+41	5360	5170	-4
95/Phys. Med.	1640	1520	-7	1400	1100	-21	1240	1430	+15
22/Thoracic Surgery	3060	930	-70	11320	8490	-25	-	-	
23/Neurosurgery	-	-		780	3970	+409	140	7020	+5014
24/Plastic Surgery	-	2780		4270	3300	-33	2450	2350	-4
62/Otolaryngology	-			3960	3750	-5	-	3580	
	7470	6770	-9	4310	5990	+39	6620	6610	0

Exhibit II-5
Specialists by type registered in Nova Scotia 1985/86 and 1988/89

PMB REGISTERED SPECIALISTS

Specialty	Dec. 31/85	Dec. 31/88
Anesthesia	68	73
Anatomical Pathology	6	9
General Pathology	20	19
Haematological Pathology	2	1
Medical Biochemistry	2	2
Medical Microbiology	3	5
Neuropathology	0	1
Subtotal	101	110
Cardiology	11	16
Dermatology	7	11
Endocrinology & Metabolism	0	1
Gastroenterology	3	4
Internal Medicine	108	130
Respiratory	1	1
Neurology	11	16*
Physical Medicine & Rehabilitation	7	9
Respiratory Medicine	1	1
Subtotal	149	179
Pediatrics	58	66
Human Genetics	1	1
Subtotal	59	67

**14 excluding Peds.*

Note: Physicians identified as being retired are excluded. However, not all physicians registered are in practice or receiving MSI fees. We have not attempted to reconcile this list with the list of physicians receiving MSI income.

Specialty	Dec. 31/85	Dec. 31/88
Cardiovascular & Thoracic Surgery	3	5
General Surgery	98	95
Orthopedic Surgery	16	18
Plastic Surgery	7	8
Vascular Surgery	6	6
Thoracic Surgery	9	6
Subtotal	139	138
Urology	16	18
Community Health	1	3
Neurosurgery	5	6
Obstetrics & Gynecology	43	40
Diagnostic & Therapeutic Radiology	3	3
Diagnostic Radiology	64	71
Nuclear Medicine	2	3
Ophthalmology	35	36
Subtotal	104	113
Emergency medicine	1	4
Radiation Oncology & Therapeutic Radiology	0	1
Medical Oncology	0	1
Otolaryngology	21	21
Pediatrics	58	66
Psychiatry	75	86

Source: Provincial Medical Board Directory

Nova Scotia Royal Commission on Health Care
Comprehensive Health Care Planning Guidelines
October, 1989

Doane Raymond

REPORT OUTLINE

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1. THE HEALTH SYSTEM

Physicians begin and influence most services in our health care system. Nurses, and other health care professionals also play a major role in the delivery of health services.

Nova Scotians receive health services at home, in local physician clinics, at ambulatory clinics, and in hospitals. Community hospitals serve local communities. Regional hospitals receive referred patients who are more seriously ill. They serve regions having several community hospitals. Tertiary hospitals care for patients with complex illnesses. Centrally located in Halifax, they are also teaching hospitals, affiliated with Dalhousie University.

Physicians are independent professionals who advocate patient services. Physicians divide into general practitioners, specialists and sub-specialists. They also divide into academic and practising. Physician decisions determine a large proportion of health system costs, including hospital costs. Financial incentives reward physicians for increasing services.

Health organizations have responsibility to manage a large portion of health resources. Health organizations divide into hospitals and community programs. They further divide into geographic units, most at the community level. The community level is a small and sometimes inefficient unit of common interest and management.

Hospitals and community organizations operate independently of each other. The independence of health providers can cause fragmented and uncoordinated delivery of health services.

Community organizations provide care outside hospitals. Programs such as home care will expand and demand increasing dollars over the next few years. A strong demand for community services will require better coordination between hospitals and community

organizations. Coordination and integration should provide better health care more cost effectively.

Price does not influence the public's demand for health services. Our citizens expect health services to be available in their local community whenever possible. Highly specialized services are becoming more common. Increasing specialization and technology require (sub-)specialists to service larger geographic areas from central locations. Specialists require considerable levels of activity to maintain their level of knowledge and skills, the basis for quality care.

Limited dollars are available to the health care system. We can reasonably expect only modest increases in future funding levels. Limited financial resources constrain the future human, physical and information resources which will be available to us. Thus limits on financial resources will determine the nature and extent of health services available into the 1990's. They will also determine the timing of and locations for delivering health services. We can reasonably expect that limits on financial resources will cause us to identify service priorities as a basis for assigning our health resources.

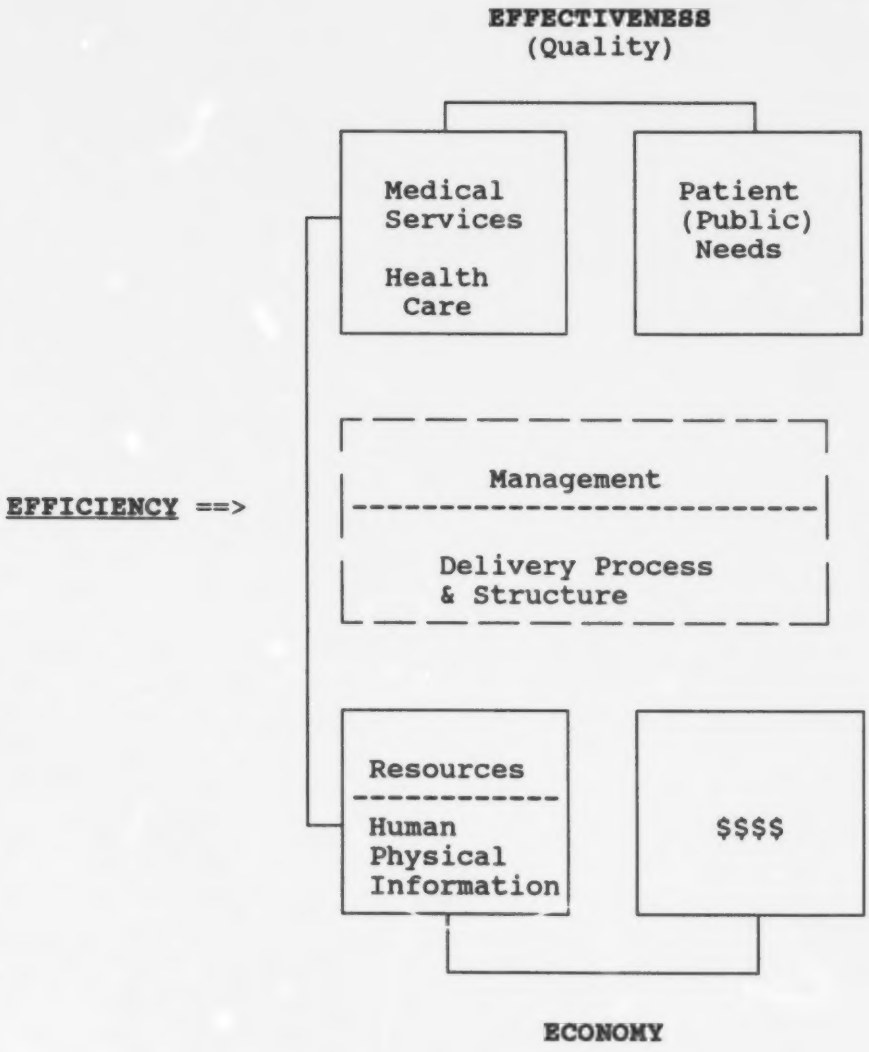
Nova Scotians deserve quality care. Our health care delivery system can deliver quality at an affordable price if Nova Scotians have reasonable expectations. Funding and delivery of acceptable levels of quality care depends on making reasonable trade-offs. A cost effective system selects delivery patterns and locations which will maximize benefits from available resources.

We envisage a system that delivers speciality services from central locations serving several regions of Nova Scotia. We also envisage a system that integrates services provided by both community and hospital organizations. Integration of services will also require reassigning certain resources. To succeed, these changes will require public acceptance.

A system implies many parts interacting in equilibrium. Equilibrium must be maintained between patient needs, health services and available resources. The quality of health care management and the structure of the delivery process determines whether equilibrium occurs.

We have diagrammed these relationships on the following page. The diagram shows the impact of management, delivery process and structure on the effectiveness, efficiency and economy of health care.

Health System In Equilibruim



2. THE NATURE OF PLANNING

Informed parties expect the health system to change significantly over the next few years. The health system requires change to maintain quality and to improve cost effectiveness. Planning deals with the creation of change. The process forecasts needs and defines priorities as a basis for distributing resources.

Planning answers three basic questions:

- Where are we now?
- Where do we need or want to go?
- How do we get there?

The planning process is deceptively simple to understand; yet difficult to carry out. Difficult because planning requires participants with diverse and competing interests to adopt a common vision of the future.

Although planning is difficult to carry out, the future success of our health care system depends on it. Certain key planning decisions will determine the quality and cost of our care for the next two decades.

Planning should be effective if:

- trustees, managers, and health professionals at all levels of the system are competent,
- participants have an attitude of integrity and goodwill,
- providers accept change, and
- providers receive adequate time to adjust to change.

3. PREREQUISITES FOR EFFECTIVE PLANNING

Planning seeks agreement and common vision from diverse and competing interests. An effective planning process convinces participants to make trade-offs in the public interest. Although all vested interests will wish to maintain their relative position, they will accept gradual change when convinced that existing circumstances cause significant problems.

Acceptance of gradual change is dependent on adherence to certain key organizational principles which govern the collective behaviour of individuals within a system. We view the Nova Scotia health system as a large organization with many hospital and community based sub-units. Organizations are more likely to carry out a plan created through a process based on sound organizational principles.

The following principles are prerequisites for effective planning.

Purpose

Engage in planning when change is required. When participants engage in planning, they need a commitment to carry out the plan. Planning participants must have assurance their work is worthwhile.

Successful health care planning requires commitment by government, trustees, managers, and health professionals.

Goodwill

All planning participants will have vested interests. Those who enter the process must recognize the need to compromise for the public good. If participants understand this principle at the outset, success is far more likely.

Participants will only compromise a vested interest if they have a strong sense of affiliation.

Representative Participation

An effective planning process involves all key players. Involvement is the cornerstone of planning. Both the public and the providers must be involved.

Authority: Integration with Management

It is frustrating and counter-productive when planning participants do not have authority to decide.

Elected representatives are directly accountable for health care. Government is the senior authority for health decisions. Planning will be successful only when fully integrated with the government's decision-making process.

Logically, government makes broad strategic decisions about <u>what</u> services and resources to provide. Providers make operating decisions about <u>how to</u> provide the services.

Provider Commitment to Change

Integrating services and reassigning resources will bring significant changes to the health care system. Trustees, managers and health professionals require commitment if they are to carry out change successfully. Involvement of key constituents in influencing the nature, extent and timing of changes should develop commitment.

Openness

There should never be secrecy in the planning process. Participants working collectively in good faith are more likely to be successful.

Acceptance

Preferably all participants will accept majority decisions. Alternatively all participants should know that others understood their different positions but logically decided not to support them.

The process will not always achieve full agreement. However, it will need to achieve at least enough agreement to convince dissenters to become tacit and neutral.

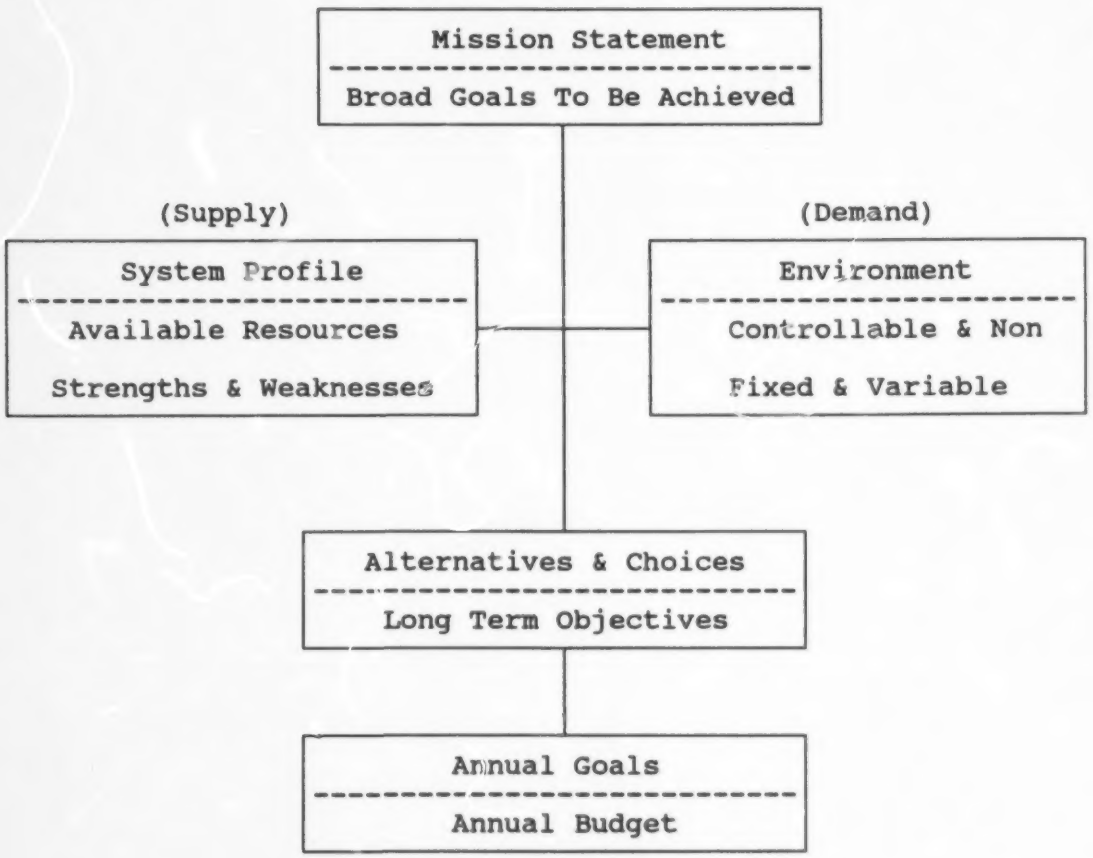
These prerequisites for building agreement form the basis for an effective planning process. They determine our recommended guidelines.

4. PLANNING PROCESS GUIDELINES

Increasingly management experts refer to strategic management rather than to strategic planning. A planning process is one of management rather than merely one of planning. To provide consistency with our mandate, we use planning to mean management.

The health care planning process should be an adaptation of a widely accepted generic planning process.

The following diagram outlines a generic planning model.



As indicated in the diagram, planning confirms or evolves the mission (broad goals) of an organization. The process forecasts future demand based on an assessment of the environment. Planning compares future demand with existing capacity. Performance gaps (problems) arise when the expected results differ from the results required by future demand. Long term objectives define ways to close the performance gaps.

The **mission statement** is a broad philosophical guide for future action. The statement communicates basic goals and achieves unity of purpose through common expectations. It guides assigning resources.

The **environment assessment** process identifies key factors in the external environmental, classified into controllable and non-controllable, fixed and variable. The assessment forecasts probable changes in variable factors, and determines the effects of these potential changes. The assessment identifies opportunities, threats and constraints which affect the organization. It projects future resource requirements.

The **system profile** is an inventory of existing human, physical and financial capability. The profile identifies strengths and weaknesses. Planned results must be consistent with capability.

Considering **alternatives and choices** first identifies the likely results of continuing without change. The analysis compares the expected results with the desired results embodied in the mission statement. If the expected results differ from desired results, the analysis identifies major performance gaps (problems). The process then develops alternative approaches (strategies) to address the performance gaps (problems). The chosen approaches guide future action and decisions.

Long term objectives close the performance gap by providing measurable targets and a time frame for progress. Participants need to find the expected results acceptable, flexible, measurable, motivating, understandable and achievable.

Annual goals translate long range objectives into the current year's budget. They mobilize people. They provide an essential link between strategic intention and operating reality. The process of setting annual goals breeds conciliation and accommodation of conflicting interests. Annual goals also provide a basis for evaluation and control.

Health care planning occurs at two levels, government and provider organization. Strategic issues receive more emphasis in the provincial process. Strategic planning for providers directly links to decisions contained in the provincial plan, with adjustments to recognize unique area circumstances. Operations planning receives more emphasis in the providers' planning process. Providers are mainly concerned with obtaining maximum services from limited resources.

The diagram on the following page compares the planning perspectives at the government and provider levels.

Comparative Planning Perspectives

GOVERNMENT	PROVIDERS
Strategic planning	Operations planning
System-wide perspective	Area perspective
Conceptual Objectives Value - oriented	Quantifiable Goals Action - oriented
Identify problems Approve solutions	Propose solutions Implement DOHF-approved solutions
Mandate services Assign to areas	Develop service patterns Structure resources
Allocate Dollars to Providers	Allocate Dollars to Area Resources
Authority	Delegated Authority Accountable for Results

5. STRUCTURE RATIONALE

Presently physicians, hospitals and community-based providers do not operate within fully integrated organizational structures. They have separate lines of authority to government. There is minimum integration between hospitals and community organizations.

Planning participants are most likely to carry out their plans if they operate within an integrated organizational structure. Within an integrated structure, all participants are directly accountable for the results they achieve. Full integration provides the same decision-making structure for both service and resource decisions.

Representative Participation

The involvement of physicians in health organizations is difficult because they are an independent profession. Many physicians have privileges from hospitals, while others only indirectly affiliate. Technology and specialization are requiring physicians to depend more on health organizations for access to resources. Related is the need for physicians to more effectively integrate their services with those provided by health organizations.

Many physicians involved with hospitals have traditionally chosen a patient/service advocacy rather than a cost effective perspective. Whatever their perspective, health organizations require direct advice and input from physicians into planning.

Other health professionals and managers are direct employees of health organizations. The organizational structure has most often provided a route for their direct input into planning decisions.

Trustees provide public involvement in health care decisions. Trustees sit on the boards of hospitals and community based organizations. The public, health organizations and government expect trustees to also perform the concurrent role of organization governor.

Trustee governors consider both service effectiveness and resource efficiency. Balancing these sometimes competing forces, trustees decide. They rely on advice from physicians related to service. They rely on advice from managers related to assigning resources.

Integration: Broadened Perspective and Responsibility

Integrated services lead to integrated management of resources. A single organizational structure provides the most opportunity for integrated management of resources. To be truly cost effective, our health system requires full integration.

All vested interests will have concern about integration. They will need convincing that integration is essential. They require convincing that money will not be available to support duplicate and inefficient services.

Even if the various providers agree to change, they will require considerable input into how and when changes happen. The potential benefits of integration should give value to the time and effort required to overcome difficulties.

An opportunity to trade community hospital service changes for higher quality overall health services will attract some communities. Integration of services will require reassignment of resources and redevelopment of attitudes.

The community is the lowest common denominator of patients within the system. The community is often an inefficient operating unit. Integration at the community level is minimal integration.

Most community hospitals and health organizations have a narrow mandate. They have responsibility for health services in a relatively small geographic area. Hospitals are usually independent organizations. Community-based providers coordinate through provincial organizations or a division of the Department of Health and Fitness. The hospital and community organization may have separate independent boards drawn from the same community. The structure is not likely cost effective.

Trustees represent the community on the health organization boards. These trustees live in the communities and interact frequently with their citizens. Undue intimacy with a small community can sometimes cause parochial points of view.

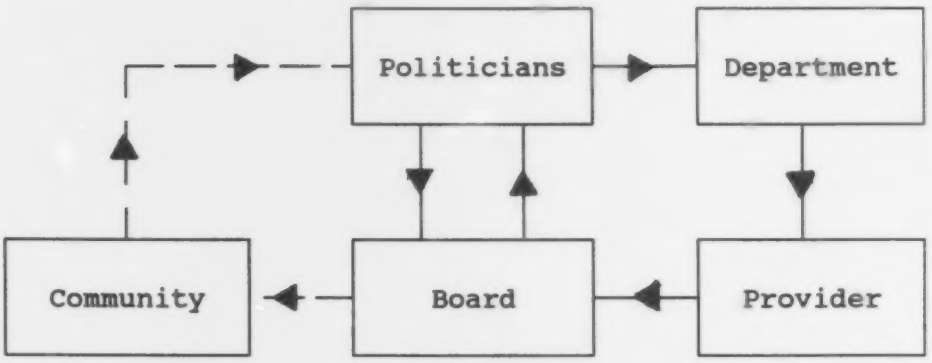
The highest potential for quality services at an affordable price will come with integration of all health services at the regional level.

Integration at the provincial level is the most difficult organizational challenge. Community based organizations particularly perceive the difficulty. These organizations perceive themselves as a weak force for attracting financial support. Only a formal structure and process can assure complete and balanced provincial representation.

Provider Commitment to Change

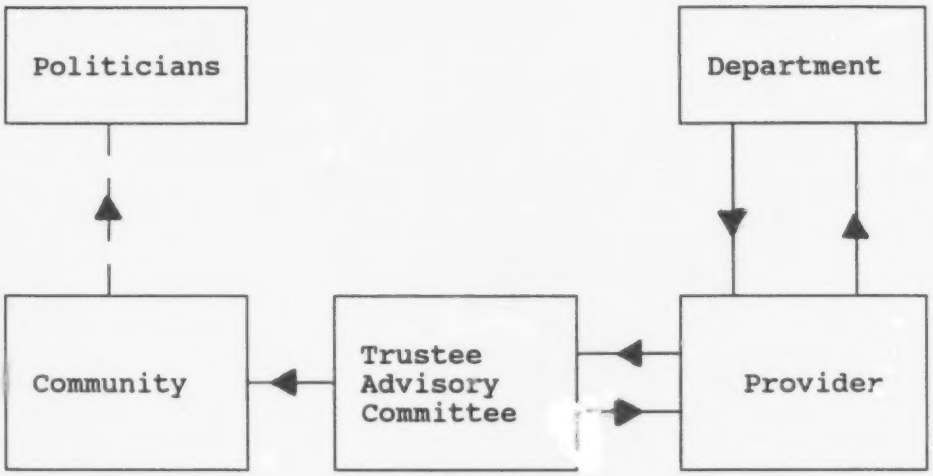
The traditional approach has been for government to initiate change. Providers often have not participated in the planning to develop these initiatives. They have therefore resisted the change. Management has reacted by involving their trustees to lobby government. Inevitably there is enough pressure to cause government to change or defer the proposal.

Provincial Ownership and Solution of Problem



There is a more effective alternative approach. Trustees, managers and health professionals in a region take responsibility for and begin required changes. This approach increases the potential for local commitment to change. Government experiences reduced demands. The community or region has increased opportunity to carry out successfully major changes within a reasonable period.

Local Ownership and Solution of Problem



Local or regional initiatives allow government to intervene should a negative situation arise.

Responsibility and Authority

Government is responsible to ensure that Nova Scotia has an effective and efficient health system. Government has the authority to make broad value-driven decisions about needs, priorities, and service levels. While advice from interested parties is valuable and necessary, government decides these issues.

As in any organization, government delegates authority for specific health matters to providers. Providers are directly accountable to government and to their communities for the results they achieve.

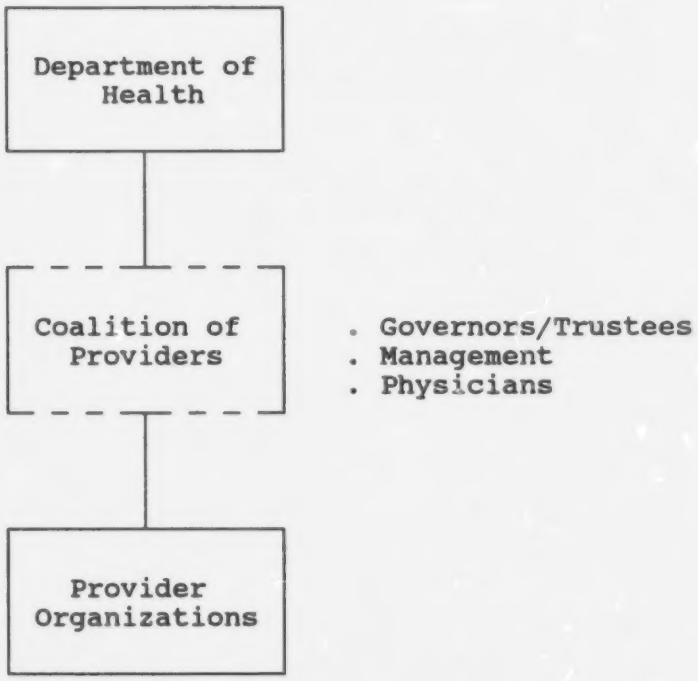
Provider organizations receive authority from government for operating decisions about service patterns and assigning resources. Provider organizations make their trustee boards (public representatives) accountable for the results of their operating decisions. Government can assist the integration process and local initiatives by delegating fiscal responsibility to providers. In return, government should demand strict accountability.

Government would assign fixed amounts of funding to providers. Providers would receive a mandate to deliver specific services to defined areas. Providers would decide how to configure their resources.

6. REGIONAL PLANNING: AN EVOLVING STRUCTURE

Integrating services and resources within regions has the most potential for improving cost effectiveness. Integration within a region will require all providers to participate in a common planning process. Hospitals in Cumberland County, Kings County, Cape Breton and Metro have held discussions in recent years related to integrating services. The Department has mandated providers in each of Cape Breton and Metro to form planning coalitions.

Planning Coalitions Concept



The coalitions are voluntary associations. Government says that similar coalitions will soon form in other areas of the province.

The existing coalitions are examining specific service areas to identify and test opportunities for integration. Based on analysis and evaluation of specific opportunities, the coalitions will develop recommendations to the Department of Health and Fitness.

The coalition model has a fragile decision-making process. Individual members keep their autonomy. Each coalition member negotiates its service mandate directly with the Department. Any member can withdraw from a coalition recommendation which is contrary to the member's interest. That member can then seek Departmental approval of a service mandate which differs from the coalition's recommendation. The strength of the coalition is therefore highly dependent on the good faith participation of each member and the Department of Health and Fitness.

The mandate of the coalitions should logically evolve into regional comprehensive health planning. Comprehensive planning includes the development of annual action plans and supporting budgets.

If government provides funding only to the region, coalition members would directly compete with each other for scarce financial resources. This process at times would require members to compromise vested interests. The chances of having providers compromise will increase if there is:

- strong regionally affiliated leaders who champion change;
- a strong sense of affiliation with and commitment to the region by each member;
- regional (local) ownership of change initiatives;

- participation in the planning process by public representatives and providers, including physicians;
- a requirement to make planning decisions within a permanent management decision-making structure; and
- a single management authority and accountability hierarchy.

Coalition members share leadership. While members have some commitment to the coalition, their primary commitment is to their organization. Coalitions provide for regional ownership of change initiatives, unless members opt out. They also provide for regional representative participation.

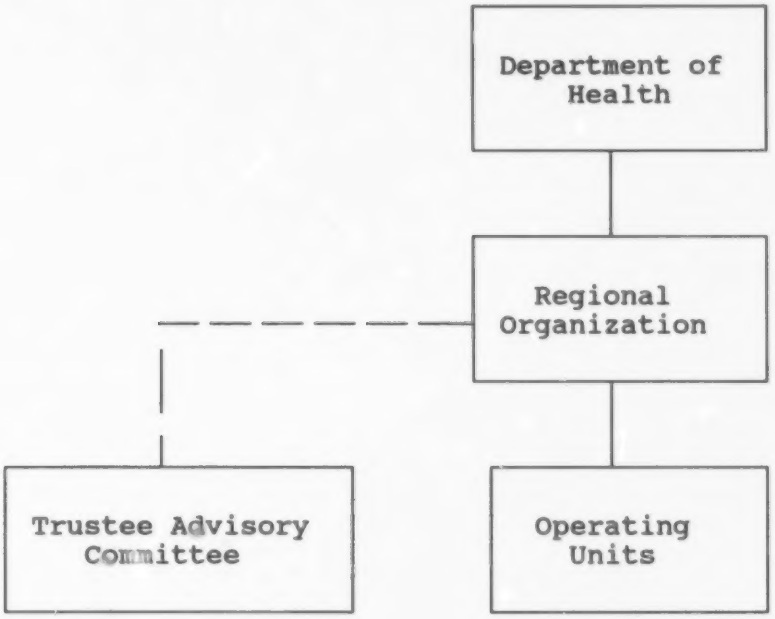
Coalitions do not have a permanent decision-making structure. Members may opt out of coalition decisions. Even if members do not opt out, the decision implementors (providers) are not directly accountable to the decision makers (all coalition members).

Coalitions likely do not have the strength to make and carry out difficult compromise decisions. Many difficult decisions arise from integrating resources within a region. The pressure of regional budgets as a stimulus for change may cause the coalitions to disintegrate.

Coalitions are a useful first step. However, their continuing success depends on the goodwill of the participants. Should coalitions fail, a region will require a stronger organizational structure.

Regional Health Organizations Concept

Single regional organizations are a stronger and likely more successful organizational structure. They can keep hospital or program identity and public input at the community level. (The single organization model may require adaptation to tertiary care circumstances.)

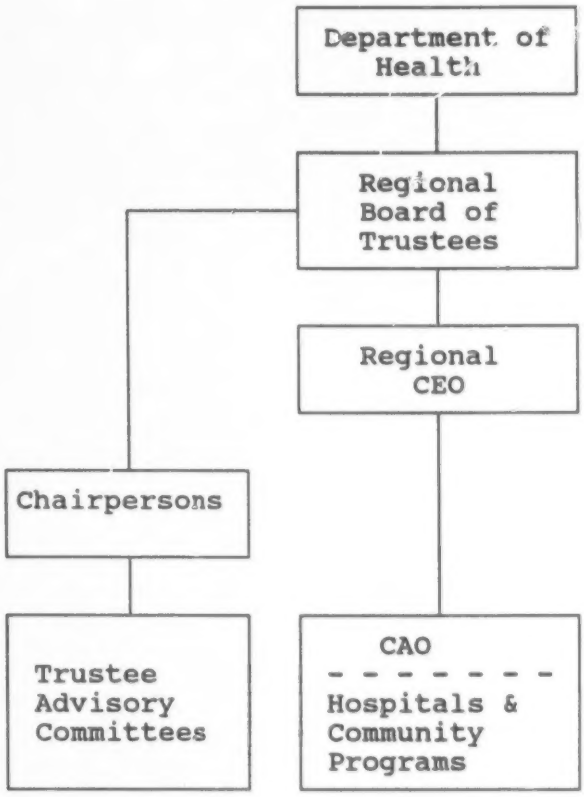


Using this concept, each region would develop action plans designed to:

- achieve the long and short term objectives of government as they apply to that region;
- expend within the allocation of financial resources assigned to that region;
- assign the mandated services for the region to its operating units (hospitals and community-based programs);
- approve a mix and configuration of human and financial resources for each operating unit commensurate with its mandated services; and

allocate available financial resources based on the approved mix and configuration of human and physical resources.

We recommend the following organization structure for a region.



The board of trustees should be representative and have responsibility for health care delivery throughout the region. The board should have qualified and committed community members to perform the dual role of public trustee (are services adequate?) and organization governor (are we providing intended services? within budget?).

Board composition should represent key vested interest groups within the region. Chairpersons from community trustee advisory committees (described later) should provide public representation on the board.

The board chairperson should be a skilled leader who has the respect and trust of government, providers and the public.

The chief executive officer (CEO) should not be directly involved in managing operations. The CEO would lead the process of integration within the region. The chief administrative officers of the various operating units within a region would report to the CEO.

The CEO requires strong leadership abilities and skills in participatory planning. The CEO must have the respect and trust of the board, government, providers and the public. This skilled leader would have the competing aims of achieving progress while maintaining government, provider and public support. The CEO must be a champion of change.

Retention of public input at the community level is essential to effective management of the health system. Communities within the region should have trustee advisory committees to ensure that all health services available to them are adequate for their needs. Each advisory committee chairperson would sit at the regional board decision-making table and report back to the community trustee committee.

Each chairperson would also need to be a public opinion influencer in his/her local community. The CEO will need the capacity to develop community support for proposed changes to health care delivery.

Using a single regional organization, government could create pressure for change in the regions through its allocation of limited financial resources. The regional organization would then be responsible and accountable to effect required changes.

The regional organization decides the services for each of its operating units. Services must meet provincial standards and guidelines.

The regional organization distributes financial, human and physical resources to hospitals and community programs according to public need and available financial resources.

The regional organization does not add another layer of decision-making bureaucracy. It simply integrates the decision-making authority now disbursed among various hospitals and community organizations within a region. Communities keep advisory committees to serve as focus groups when deciding service issues.

Advantages of Regional Organizational Structure

- Government decision-making focuses on the broad allocation of resources, standard setting and compliance, and on the approval of regional plans and budgets

- Public decision-making through governance and trusteeship are separated. This structure retains a strong trustee function at the local level. It retains a strong governance function at the regional level

- A regional executive function would make provider decisions about assigning dollars within regions. Operating management would continue to make decisions about assigning resources.

- The leadership of a single regional organization concentrates in its Board and its Chief Executive Officer. A single organization increases the potential for providers to develop a sense of regional commitment and affiliation. The continuation of community advisory boards with direct linkage to the regional governance board strengthens local ownership of change initiatives, and provides for full representation.

- Planning decisions are made within a single decision-making structure. With the single organization, the decision implementors (providers) are directly accountable to the decision makers (regional governance board).

7. IMPLEMENTATION GUIDELINES

Initiatives such as the following will begin movement toward a more cost effective Health System.

- Encourage and influence recruitment of known leaders in key trustee and management positions. Support professional development of managers and trustees considered to have leadership potential.

- Encourage and support strong leadership through the selection of board chairpersons and chief executive officers.

- Adopt an integrated and participatory planning process. Use the process to confirm or amend and extend parts of the existing provincial strategic plan for health care.

- Give providers and the public a clear statement of the system's mission and major public health policies for Nova Scotia.

- Define easily measured and widely understood financial indicators which limit expenditures on health care. Such indicators should be guiding government decisions by 1990.

- Communicate to providers clear standards of service and service levels to guide them when allocating resources.

- Continue to develop easily measured and widely understood indicators of quality care to evaluate effectiveness.

- At the earliest opportunity link medical manpower and facilities construction decisions directly to the strategic planning process.

- Complete a comprehensive and all-inclusive manpower plan for physicians and all other health professionals within the next twelve months. This plan should guide all later major decisions which assign human and physical resources.

- Clarify the role of nurses and related professionals. Determine the projected demand for each group. Set up a manpower initiative to provide an adequate supply of competent nurses into the twenty-first century.

Government

- At the earliest possible date concentrate and integrate all health and health-related programs within the Department of Health and Fitness.

- Confirm or amend the Department's organizational structure and provide sufficient human resources to achieve it's mandate.

- Amend legislation to remove the method of appointing boards from hospital legislation and place in hospitals' by-laws.

- Mandate immediate representation of community hospitals on regional hospital boards.

Community

- Encourage and promote phased integration of planning for community hospital and community based programs, developing community health centres. Refine and mandate the concept within three to five years.

- Support and encourage existing regional initiatives to co-ordinate and integrate community based and hospital health services. Target an area for completion of the first mature model. Promote the mature model and reward integration initiatives in other regions.

- Allow options within the community health centre model to respond to unique local circumstances. Promote and reward efforts to use the model.

- Mandate representation on community hospital boards from key community based health organizations. A health organization which provides a major service within the hospital's service area should be eligible for representation on the board.

Regional

- Adopt and promote regional structure. Integrate services, resources, and management. Phased implementation over a limited period should increase the chances for success.

- The Department, in consultation with the providers, needs to redefine the regions within the province. Base the criteria for defining a region on sound

management and organizational principles. Relate to existing physician practice patterns.

. Develop the joint planning initiatives by initially creating small units. When the small units are operating effectively, integrate them successively into larger units.

The initial small planning units can consist of a regional hospital and its related community hospitals. As community hospitals and programs integrate, health planning groups will naturally evolve. They will integrate all regional health services, not just hospital services.

. Set up a timetable for each phase of integration. Define target dates for joint budgets by the regional planning units.

. Mandate regional organizations if the coalitions fail to achieve required levels of integration.

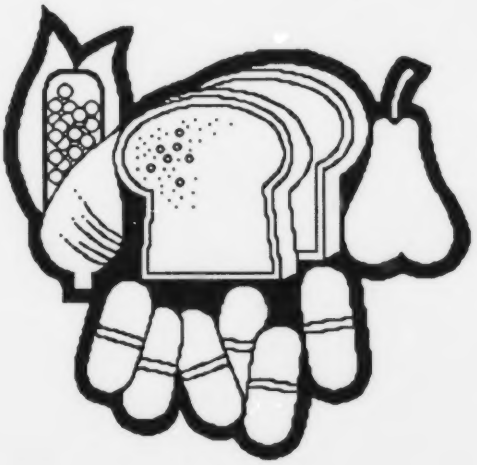
Report on Cost and Quality of Hospital Food Production in Nova Scotia

prepared for the

Nova Scotia Royal Commission on Health Care

by

Mac Lean Hospitality Consultants Limited



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EXHIBITS AND APPENDICES

EXHIBITS

1 Dietary Department Financial Cost Performance figures 1982/83 to 1987-88

2 Schedule of N.S.A.H.O. recommended salaries 1988 Also copy of Valley Health Services Collective Agreement (salary levels in back).

3 Comparison of 1987-1988 approved budgets and actual cost performance.

APPENDICES

1 Dietetic Department Guidelines published by Health and Welfare Canada
in larger health care facilities
in larger health care facilities (revised 1985 addition)
in smaller health care facilities.

2 Diagram and photographs of typical beltline of small regional hospital.

3 Department of Dietetics, Food and Nutrition Policy (Victoria General Hospital).

4 Cap Kold Central Commissary Systems Manual.

5 Photographs of Ottawa Commissary.

6 Cook/Chill operation at North York Hospital..

7 Department of Health Dietary Design Procedures.

8 Photographs of Flaws in Construction at South Shore Regional. .

9. Tube Feeding Manuals.

10 Selection of patient menus

11 N.S.A.H.O. Grocery Catalogues.

12 N.S.A.H.O. group purchasing policy.

13 Outline of N.S.I.T. Dietary Service Course.

SECTION 1 OBJECTIVE

Mac Lean Hospitality Consultants Limited, has been retained as an independent technical consultant, by the Royal Commission on Health Care, to research, identify and report the various factors that contribute to the cost and quality of food production within the Nova Scotia Hospital System.

SECTION 2 BACKGROUND

2.1 HISTORIC PERSPECTIVE

The custom in Canada has been for hospitals to prepare and serve food to patients. Historically, hospital kitchens have been staffed by older women from the community, who had gained their experience cooking and caring for large families. Usually these women were supervised by a kitchen manager with experience or training in institutional food production. The objective was to produce large quantities of good tasting home-style dinners and baked goods. The patients were often given two selections to choose from, but no variation of these two selections were produced. An individual effort was made to provide for special dietary needs, like post-operative patients, diabetics, and fussy eaters.

2.2 THE CHANGING ROLE OF THE DIETITIAN

Historically, dietitians (heath care professionals who are concerned with the nutritional and dietetic therapeutic needs of individual patients) were more involved in clinical dietetics, than in actual production. In the past few decades, a trend to treat many conditions with diet as well as the conventional surgical and medicinal treatments has contributed to the increased role of the dietitian. As the role of diet in patient care increases in importance, food production and service has become more and more the responsibility of the Department of Dietetics[1]. The resident dietitian is now responsible for all aspects of food production including staffing of the kitchen, managing of kitchen affairs, purchasing and all budget functions of food production.

1 Definiton in glossary.

2.3 CANADA FOOD GUIDE

As Canadians, our first contact with nutrition was usually when we were exposed in elementary school to the Canada Food Guide. We were advised to eat three meals a day, with 2 servings from the "milk products"group, 2 servings from the "meat, fish, poultry and alternatives" group, 4-5 servings from the "fruit and vegetable" group and 3-5 servings from the "bread and cereals" group

2.4 NUTRITIONAL THEORY AND CANADIANS

To many lay-people, nutritional theory and terms have seemed vague and conflicting. Is protein good or bad? What of fat or cholesterol or poly-saturates? Even the term "diet" most often referred to a cutting down of food intake for the purpose of losing weight. Times have changed ! Now, it is generally accepted and generally known that diet influences a variety of factors that contribute to an individuals physical and psychological well-being.

We have learned that good dietary practice can also help decrease the likelihood of future health problems and that attention to sound dietary practice can aid in coping with the increasing stresses of our modern society. In fact, everywhere in Canada people are becoming increasingly aware of this correlation between diet and well being. It is generally accepted that things we eat and drink definitely affect our health. Some cancers and most heart related problems have been proven to have a dietary link. It is no longer unusual for people to know their blood pressure and cholesterol level. Canadians have already reacted to this type of link through decreased intake of: red meat; fatty cuts; salt; processed meats; fried foods; preservatives; dairy products high in butter fat; and bleached white flour. They have also increased their intake of: poultry; whole grains, raw fruits and vegetables; low fat dairy products; and unrefined or "natural" products. Terms such as "whole grain","natural" and "healthy" have become "buzz" words for the food advertising industry. The benefits to be gained from increasing the natural fibre, raw fruit and vegetable content of our diets are generally known as are the benefits of eliminating or cutting down on a constantly growing list of less healthy foods from our diets.

2.5 FUTURE NEEDS

With the "greying" of our society and as other "diet/disease" links are established, we can expect more and more people to be striving to stay youthful and vital. As a consequence, the desire for knowledge of the nutritional science and sound dietary practice will increase. In fact, the ever growing list of potentially harmful foods is making hospital food production more and more difficult to accomplish.

SECTION 3 SCOPE

3.1 GEOGRAPHIC

The consultant has attempted to identify the most prevalent and pertinent problems in food production within the Nova Scotia hospital system. The consultant visited eleven different hospitals: two small community hospitals; three large community hospitals (sub regionals); three regional hospitals; and three Metro hospitals . The consultant also travelled to Ontario to view the "cook/chill/cold plating" operations at the North York Hospital in Toronto and to Ottawa to tour a large commissary operation which included dependent hospitals. Information was also obtained from the offices of: the Nova Scotia Association of Health Organizations; the Department of Health; and Versa Catering Services.

3.2 METHODOLOGY

The consultants investigations took the form of: on site observations, interviews with dietary staff and management, and analysis of Department of Health cost performance data [2] .The personal interview was the main source of information for this project. Another source of information was onsite observations of employee and management activities including physical inspection of facilities and products. Technical readings and accounting data are also utilized as sources of information. The accounting information presented is taken completely from the "Dietetic Cost Performance (1982-1988)" figures as supplied by the Department of Health. The Quality Assurance Program documentation for each hospital, including technical manuals, was also examined.

Given that a complete documentation of the vast subject of food production in Nova Scotia hospitals would require far more in depth research than provided for in this assignment, the report has been limited to: identifying significant trends in food production, outlining the problems dietary departments are experiencing, and suggesting possible directions to be pursued in solving these problems. An exhaustive description of the system of food production in the Nova Scotia hospital system is not addressed in this assignment because most procedures and current theories are well documented in Federal, Provincial and individual institution manuals. To fully utilize this report, it is recommended that readers reacquaint themselves with The Health and Welfare Canada publications "Dietetic Department Guidelines in Larger Health Care Facilities" and "Dietetic Department Guidelines in Smaller Health Care Facilities"[3].

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[2] Exhibit # 1 contains D.O.H. Cost Performance figures, group totals, & system totals.

[3] Appendix #1

SECTION 4 FACTORS THAT AFFECT QUALITY

4.1 BACKGROUND

The factor having the greatest impact on the quality of food production is the limited financial resources available to the system. All other factors have to be examined with this constraint in mind. The Department of Health approves dietary budgets and allocates money to be used for: salaries; raw food cost; and the other expenses (disposables, repairs, replacement of small-wares, in-house promotion, etc.) incurred in the production and distribution of food.

The amount of money allocated to each hospital is a multiple of the cost of a Patient Meal Day[4]. A patient meal day is the cost of feeding one patient three meals, plus between meal nourishments and beverages. The number of patient meal days is established by adding together the patient head count (taken at midnight) and one third of the out-patient meal count. The other standard unit used in the budget process is Gross Meal Days[4] which equals the sum of: the patient meal days; the student day meal count; the meals shared with other institutions; and the non-patient meal day count (i.e.cash recoveries & non-cash recoveries divided by meal day value).

It is the duty of the dietetics department of each hospital to use the dietary budget funds to cover all expenses incurred in food production and delivery. The ability to perform within budgetary constraints is a criterion by which dietitians are assessed by their administrators and the Department of Health. Dietary Departments have some autonomy over what they serve and how it is prepared, but this and all other goals are constrained by the limited resources provided.

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[4] Definition in glossary

[4] Definition in glossary

4.2 QUALITY ASSURANCE

Good quality, nutritious food is the goal of individual dietetic departments. The definition of "good quality" and how to produce good quality food are in-house decisions. Most hospitals have adopted a "Quality Assurance Program"[5] as part of the requirements of the accreditation[6] process. The Quality Assurance Program is a documented plan evaluating and monitoring the Operations of the Dietetics Department. Even the most caring of professional dietitians face many obstacles in attempting to achieve the goals and standards documented in their Quality Assurance Program.

4.3 TEMPERATURE AND QUALITY

Food temperature is a preoccupation in hospital kitchens. Food produced in hospitals, that is held for service, is kept outside the temperature range where bacteria multiply. This means all food served in hospitals is brought to, held and served at temperatures below 40° F. or above 180° F. This temperature refers to the internal temperature of the food product.

Chilling foods and beverages to below 40°F. is a sound practice. It keeps bacteria levels in check and often improves the taste and increases the appeal of the item. With hot food, though, there is a trade off. High temperature discourages bacteria growth, but has a negative effect upon the nutritional value and product quality of food. Hot food, by its nature, is breaking down (chemically deteriorating). At 180° F. all meats are well done and vegetables deteriorate rapidly. The longer the food is held at high temperature the less: nutritional value; texture; taste; color; and overall appeal remains. Obviously, therefore, minimizing the holding time is an absolute necessity to maintaining quality.

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[5] Appendix # 1 Dietetic Department Guidelines in larger health care facilities (revised 1985)- pp 18,19,20

[6] Appendix # 1 Dietetic Department Guidelines in larger health care facilities (revised 1985)- pp 16

The utilization of batch cooking is the best method of minimizing the holding time and subsequent heat damage. Batch cooking is a process whereby food is thermalized in small lots in order that only the required portions are brought to service temperature, as needed. Batch cooking is practiced in varying degrees in most hospital kitchens. The extent and effectiveness of batch cooking, in improving quality, is directly related to the organizational skill and control of the production supervisor.

4.4 SERVICE TIME

Cooking and serving food in hospitals is a race against time. The larger the hospital, the more difficult the task of serving food quickly enough to minimize deterioration in quality. The Victoria General Hospital, for instance, serves all its patients in the same one hour and twenty minute time period as facilities in Kentville or Sydney require to accomplish the task. An average of eight meals a minute (one every seven and a half seconds) are assembled and checked on the Victoria General Hospital "trayline" or "beltline" [7] by the eighteen people who work on the assembly and delivery of patient trays. This gives the Dietary Supervisor approximately five seconds to visually check a tray for accuracy and completeness. Presentation must also be approved during these few seconds. Maintaining quality as production lot size increases is, clearly, an extremely difficult task for the larger hospitals.

4.5 USE OF CONVENIENCE PRODUCTS

The ever increasing costs of labor has led to an increase in the purchase of convenience products. Hospitals are buying foods that are more processed (requiring less labor to prepare) because scratch cooking, "prepping" and peeling are often too expensive for current budgets to support. As a result, many shortcuts are utilized: canned soups are used to make "cheater" sauces; and frozen vegetables, sliced vegetables, and instant potatoes are replacing fresh product. In one Nova Scotia Hospital, it was noted, powdered fruit juices have been routinely substituted for concentrated products.

Dietiticians have expressed concern that convenience products often have undesirable additives and/or high in sodium content.

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[7] Definition in glossary See Appendix 2 Diagram of beltline.

4.6 USE OF PORTION PACKS

There is an increase in the availability and use of portion packed products (like individual jams, beverages, puddings, condiments etc.,) because of labor savings in portioning, predictable unit costs and sanitary delivery. These pre-portioned foods help cut patient meal preparation time (less measuring of juices and milk products) and help speed up the assembly on beltlines (these containers are sealed and cannot spill). Manufacturers are continually introducing new specialty products, aimed at the institutional market. (eg. 1% milk, sodium reduced soups, calcium enriched puddings etc.)

4.7 STREAMLINING PRODUCTION

The limited financial resources available force changes in hospital kitchen structures. Decisions have had to be made to streamline production in order for each hospital to optimize use of its available budgetary allocation. Some areas of hospital production are casualties of the budget squeeze.

Hospital bakeries are disappearing at an increasing rate. Sometimes, it is less expensive to buy baked goods than to produce them. Fast food outlet donuts are appearing in hospital cafeterias. Ready to bake rolls, frozen pie shells and fillings are becoming more prevalent. This trend is distressing to dietitians, who cannot be certain of the production methods and content of ingredients (eg. lard) of these acquired products. The lack of availability of baked goods catering to special dietary needs is an additional matter of increasing concern. The remaining hospital bake shops are mostly involved in producing for patients with special dietary needs.

The offering of cold meals such as salad and sandwich plates is declining, partially due to their labor intensiveness of their preparation. This type of meal production is also declining due to increases in the raw food cost of the salad greens and raw fresh vegetables, required to make a presentable plate.

4.8 DECLINING VARIETY

Dietary departments have determined that an increasing number of food products are neither desirable nor acceptable for consumption in a health care facility. As new developments in the study of the relationship between nutrition and illness are revealed, increasing numbers of foods, spices, and cooking methods are being removed from the acceptable list.

The above trend has had a marked impact on the variety of products served. Along with the breakfast standards of: ham; bacon; sausage; and fried eggs, a long list of foods high in cholesterol, sodium, and sugar have become available only in the cafeteria. The spices that take away the boredom and blandness of foods are also out of favor. Fried foods are very seldom served. Deep fryers are gathering dust or being replaced by convection steamers.

4.9 SPECIAL DIETS

Each year more varieties of special diet meals are offered by hospitals to suit the varying dietary health requirements of patient groups. The so-called full diet is now a minority item with special diets making up at least 60% of food served to patients. For example, the Victoria General routinely produces thirteen different diets for each meal serving. Examples of diets routinely prepared are: full diet; mechanical soft; digestive soft; energy controlled; renal; sodium controlled; cardiac; high protein; calcium restricted; gluten restricted; full liquid; clear liquid; diabetic and variations of many of the aforementioned.

The ever increasing list of therapeutic diet variations has led to modification of production and preparation methods. Recipes are now partially prepared with the ingredients that will be provided to most of the patient population, then divided and finished in various ways to suit different diets, some with salt, some with sugar, and some with spice.

The task of assembling meals becomes more difficult with the diversification of products. Beltline workers must exercise a higher standard of care as they are working with a greater number of products. The set up, maintenance, and delivery of this more diverse product line increases the degree of difficulty at every stage of their task. The margin for error also increases proportionately with the increase in types of diet served.

Each dietary department has to make its own decisions as to what types of special diets best serve the overall needs of the patient profile. Every new diet that is offered increases the degree of difficulty in service and in production. Eventually decisions must be made as to where this diversification in production is going to stop. The probable direction is toward the eventual elimination of the standard "full diet", to be replaced by a cardiac type diet as the standard production meal.

4.10 STANDARDIZATION

Diversification of production is proceeding in all hospitals according to each individual hospital's priorities. This is an indicator of another situation that adversely affects quality, that is, a lack of standardized practices and procedures from kitchen to kitchen. Most Directors of Dietetics believe they are using the same products and production techniques as their colleagues. Given that dietitians have much in common: educational background, goals, reference information, Department of Health guidelines, and association standards; it is not surprising that dietitians assume that there is consistency in procedures and in standards.

In practice, however, there are areas where standards appear to differ. Each dietary department is essentially autonomous, allowing each hospital to respond to varied patient profiles, health needs, and even regional diet differences. It appears that this autonomy often results in adverse effects when hospitals develop self interest and jealousies that hinder communication and co-operation between institutions. The system as a whole would benefit considerably if an effort was initiated to standardize acceptable products, practices and procedures. The obvious pitfall in implementing any system of standardization, however, results from employee resistance to decreasing the autonomy currently enjoyed.

4.11 DIETETIC CONSULTANT

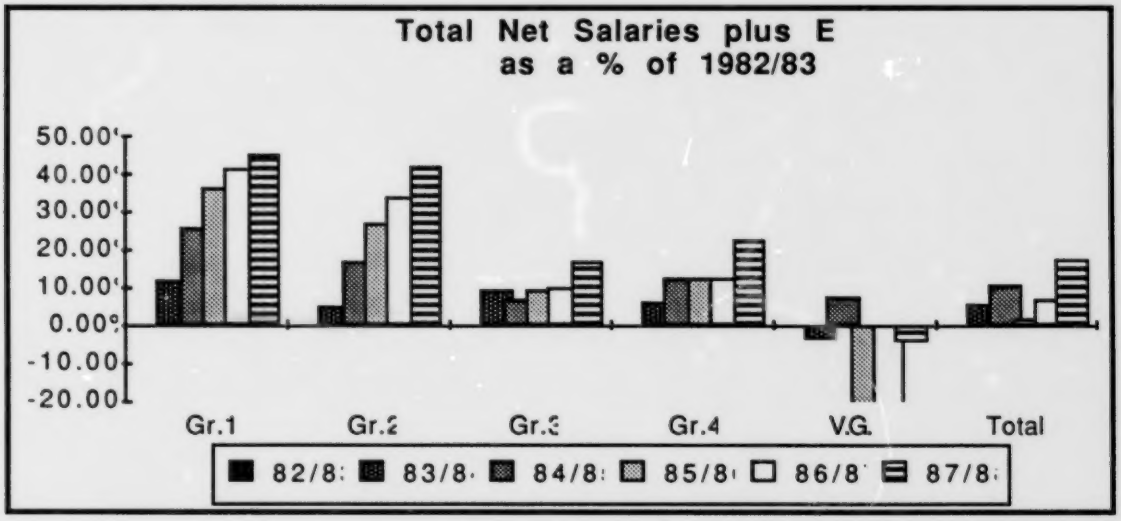
The sole Department of Health official responsible for monitoring the dietary departments of all forty six hospitals is the one remaining dietary consultant. She is responsible for approving capital construction, approving the forty six budgets (forty million dollars), along with consultation in problematic situations. In addition, the dietetic consultant traditionally provides problem solving expertise to individual hospital dietetic departments. There were two dietetic consultants at the outset of this project, one retired in April of 1989. There are no plans to hire a second. The funds that had previously been allocated as salary for the second dietetic consultant are now being used by the Department of Health to pay for one half of a consulting physician's salary. The wisdom of cutting a job where the individual is responsible for the proper allocation of such a large budgetary category is questionable.

It appears to be impossible for the one remaining individual to properly enforce Department of Health dietary guidelines This results in greater autonomy for hospital dietary departments. Accordingly, it is doubtful that there will be any growth in the areas of standardization and communication between dietary departments under present circumstances.

4.12 CHANGE IN PATIENT PROFILE

Historically, patients requiring treatment beyond the community hospital were referred to a regional hospital and on to the Victoria General or a speciality hospital, if necessary. Usually the patients stayed at the larger hospital until discharged. However, community hospitals are now finding that these patients are being transferred back for recovery at the community hospital, as soon as it is safe to transfer them. These recovery and chronic care patients are much more costly and time consuming to care for as reflected in the cost performance of community hospitals [8] demonstrated in Chart 2:12 (groups 1 and 2). The cost of food service and the need for dietetic counselling, in community hospitals, has increased accordingly.

CHART 2:12



[8] Appendix # 1 - Total Net Salaries & Expenses tablee 1:12 & 2.12

4.13 TUBE FEEDINGS

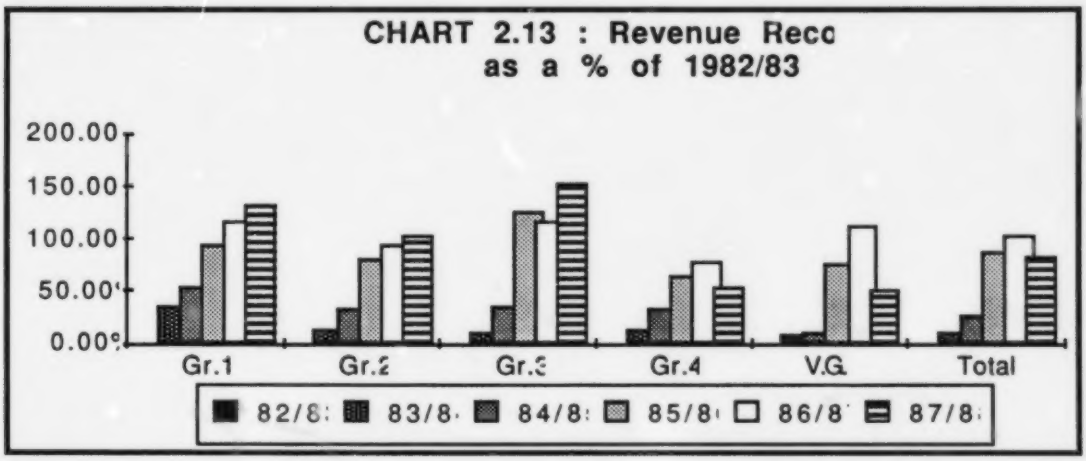
The growing use of liquid diets or tube feedings is having an effect on dietary department budgets. The cost of tube feeding a patient can be from $24. to $45 per day. There is some controversy whether this expense should be accounted for as a pharmaceutical rather than dietary expense. Pharmaceutical companies produce and supply these products. The cost of tube feeding one patient can be as much as the entire monthly dietary budget of a small community hospital. The inclusion of these costs distorts and makes accurate reporting of dietary financial data difficult.

4.14 CAFETERIA SALES

Cafeteria service is becoming increasingly important in hospitals. It used to be that cafeterias offered a convenient way of recovering revenue from overproduction for patients. Cafeteria service is now big business and will get bigger. Cafeteria revenues (recoveries) have more than doubled from over $3,286,000. in 1982-1983 to close to $6,641,000.in 1987-19889 .

Total Gross Salaries and Gross Expenses (thousands)					
		Total System	- V.G.H.	= Net	% increase
882/83	Gross Salaries	18116	-4059	14057	0.00%
87/88	Gross Salaries	26219	-5023	21196	51%
82/83	Gross Expenses	13245	-3229	10016	0.00%
87/88	Gross Expenses	13843	-2982	10861	8.4%
* financial information excludes Victoria General Hospital hospital as data from the Victoria General Hospital is inaccurate.					

The variety of foods offered has changed and the employees of the hospitals have been very vocal about further improvements they are seeking. Salad bars, deli bars, fresh fruit pavilions, perked decaffinated coffee, short order stations (french fries and all) and appetizing daily specials (aside from the overflow from production of patient meals), are but some of the facets of this growing trend. The development of more diverse product offerings is time consuming for dietary departments, but these efforts help the hospital morale and working conditions. The revenue creation helps dietary departments grow in size and increases available funds. Self sufficiency in cafeteria operations is a goal of dietary departments[9] . Upon examination of revenue figures it is noteworthy that sales are down in 1987-1988[10] . This is not an accounting mistake. The temporarily reduced revenue recoveries is directly related to conversion of most hospital cafeterias to non-smoking areas.



[9] Appendix # 3 V.G. Dept. of Dietetics-Food & Nutrition Policy- (goal # 3 pp5)
[10] Cash Recoveries see Exhibit 1 -table 1.13, charts 1.13 &2.13

4.15 CATERING IN HOSPITALS

An increase in catering requirements in most hospitals has added an additional strain on the dietary departments. In this day and age of participatory management the number of department meetings, policy meetings, staff physician meetings, in service trainings meetings, budgetary meetings and so forth are increasing every year. Since the most successful and opportune time to hold these meetings is during the work day (at the lunch hour) food is usually deemed a necessary offering to insure attendance. These caterings are a definite factor in decreasing overall food quality, for several reasons. Firstly, the majority of caterings occur at lunch which is the main patient meal time and the peak cafeteria time. Secondly, caterings usually require a senior staff member capable of anticipating and interpreting any situation that may arise. Thirdly, the demand for catering is erratic and difficult to schedule. For example, catering demand is always strong in the holiday season but the rest of the year is difficult to budget for. Difficulties and inaccuracies result from the anticipation of events a year in advance; for instance, how to accurately budget for the catering requirements of a series of planning meetings to be held at an unknown time to discuss specific issues such as new construction.

4.16 DIETARY COST PERFORMANCE:

Examination of the table below reveals that gross salaries for dietary departments have risen by about 50% since 1982-1983. In the meantime, the dollars spent on gross expenses have only risen by about 8%. In this same time period Statistics Canada estimates that the cost of food rose 42%.

Table 1:13	Revenue Recoveries					(thousands)
	Group # 1	Group # 2	Group # 3	Group # 4	V.G.H.	Total
82/83	77	266	1376	1567	1853	5139
83/84	106	305	1519	1778	2040	5748
84/85	120	353	1860	2104	2076	6512
85/86	152	484	3126	2604	3297	9662
86/87	169	518	2987	2808	3964	10444
87/88	181	543	3489	2428	2796	9437

4.17 CHANGES IN THE ROLE OF THE DIETITIAN

Over the past decades dietitians have gradually become the people who control food production in hospitals. It wasn't very long ago that kitchens were run by chefs under the guidance of dietitians. Now, it is different, dietitians control all dietary departments larger than that of a small community hospital. It takes 3 to 4 years to obtain a Bachelor of Nutrition university degree plus one year to complete an apprenticeship program at the Victoria General Hospital before becoming a dietitian. The official definition of a dietitian[11] gives insight into the main problem

> "A dietitian is a university graduate uniquely prepared by education of food science, human nutrition and related sciences[12] for the practice of nutritional care. The dietitian applies research, education techniques and professional knowledge and skills in normal and therapeutic nutrition and in food service systems management to attain and maintain the health of individuals, groups, and the community.

It is a problem that their training has not kept pace with job development. The current dietitians course does not adequately prepare them for all aspects of managing a kitchen and they have very little background training in actual cooking. The "food handling" dietetic students study is concerned with sanitation and bacterial growth; a perspective which does not adequately cover food production for appetizing appearance and good taste. This perspective is important for, after all, how much food value is received from an uneaten meal? Dietary students study food systems management and spend three months of apprenticeship in food production. This training does not, in itself, prepare them for running the production in a hospital kitchen. It does, however, serve to lull them into the feeling that they are fully qualified. This is not their fault. The university training dietary students receive is not keeping pace with the current requirements of the dietitians position. There are individual dietitians within the system who are very knowledgeable in the preparation of food, because they cared enough to develop the necessary skills after leaving school.

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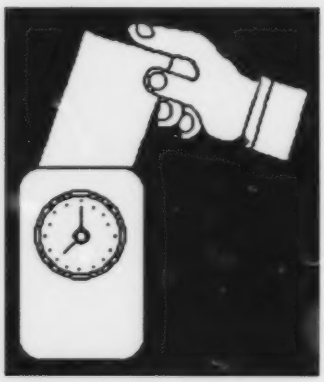
[11] Appendix # 1 Dietetic Dept. Guidelines for larger health care facilities (1985) pp4

[12] Related sciences include biochemistry, physiology, behavioral sciences, and management sciences.

SECTION 5 LABOUR

5.1 BACKGROUND

Dietary Departments have three types or levels of labor. Firstly, management consisting of a combination of the following: a director of dietetics; dietitians; a chef (now rare if not non-existent) and a production manager (usually a dietitian). Secondly, middle management and skilled workers consisting of a combination of: head cooks; chief cooks; staff cooks; dietetic clerks; and dietary supervisors. Thirdly, the general worker level will always be found. These people are mostly unionized employees with nearly of their training being provided in-house. The job titles in this category are: utility worker; tray supervisor; dietetic aide; cooks' helper; cashier; and stores clerk. Province wide labor contracts are negotiated by the Nova Scotia Association of Health Organizations on behalf of the member hospitals. Union hospitals subscribe to the schedule of salaries recommended by the Nova Scotia Association of Health Organizations; for fiscal year ending March 31, 1989 [13] *.



[13] See Exhibit # 2

5.2 SMALL COMMUNITY HOSPITALS

A small community hospital would usually have a dietary department consisting of several older women from the community who order food, cook meals, serve trays and clean the kitchen. Resident dietitians are often part time employees and have very little to do with the kitchen as they have been hired to conduct outpatient counseling only. Some small community hospitals on the other hand, have a full time staff dietitian who handles kitchen management, clerical and clinical dietary duties. In a small town the hospital is a major employer. The older women, who work in the community hospitals, usually have the experience that comes with raising a larger family. The turnover is low and the dietary department is quite stable. It is essential that proper care be taken in hiring the right people. In the event it becomes necessary to terminate an employee the hospital must be wary of potential community relations problems. News travels fast and memories are long, in small towns. Entire families and segments of the community can be alienated by a poorly handled termination. The plus side of small town familiarity, resulting from the kitchen worker often knowing of the patient or their family, is personal treatment and recognition for the patients. Small patient numbers and familiarity allow kitchen workers an excellent opportunity to observe individual patient eating habits and food preferences (dishroom audit), thereby adapting quickly to cater to their needs. These workers have very little supervision and next to no training in proper food handling and nutritional theory. New employees are trained by the existing staff. When training programs are offered (such as a Nova Scotia Organization of Health Organizations course on sanitation) the unavailability of substitute staff and funds to pay for replacement workers as well as the travel itself are obstacles to attendance. Most of these hospitals try to prepare multiple menus for different patient needs, the main varieties being: full diet; mechanical soft; low sodium; and calory reduced meals. If there is no dietitian on staff, then the administrator will decide the master menu make up. Even when the hospital does employ a full time dietitian, the offered salaries are low and usually only young graduates will take the position. The occasional fortunate community hospital will be lucky enough to get an experienced dietitian who lives in or will move to the area for lifestyle or family reasons.

5.3 MEDIUM SIZE HOSPITALS

These hospitals experience the best labor situation. Their budgets are large enough to allow proper management structure. The Dietetics Department is headed by a Director of Dietetics, who has a staff of clinical dietitians, (and depending on number of beds and volume, maybe a production dietitian) head cooks, staff cooks, dietetic supervisors, dietary clerks, cleaners and general workers. This structured division of labor leads to specialization and growth. The kitchen staff of medium size hospitals are almost always union members with the exception of hospitals employing private catering firms.

The smaller towns have advantages over larger centers in attracting and keeping good staff. The job market available within a rural, less industrialized community is limited. Salaries, job stability, and benefits offered for each position in the hospital are more attractive than is the same job, at the same rate, in urban industrialized areas like Sydney or Metro, where there are a greater variety of options and work alternatives for the worker. Consequently, the smaller centers are usually getting a more contented, better quality worker, who will stay longer.

Another advantage for the medium size hospital is that it is still a controllable size. It is easier to evaluate your staff and for their strengths and weaknesses.

5.4 LARGE URBAN HOSPITALS

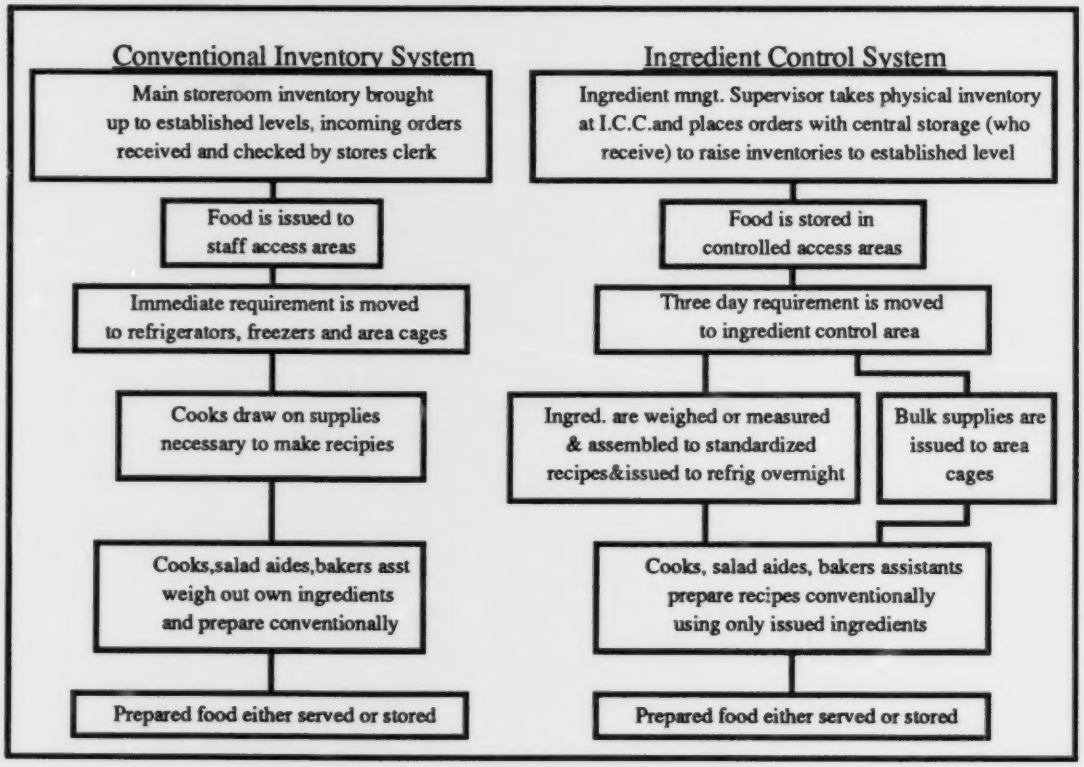
The challenge in staffing and maintaining quality food service in large urban centers is great. Organization and structure become essential to the communication necessary to operate in an efficient way. Except for the menu they see on the tray, most dietary workers have no contact with the people they are helping to care for. In these large hospitals, the three month probationary period for new employees is woefully short. It is an inadequate length of time for thoroughly assessing a new employee's capabilities and attitudes. Once full time status is given it takes about two years to remove an unsatisfactory employee.

5.5 CHANGING SYSTEMS, CHANGING NEEDS

a COOKS AND INGREDIENT CONTROL

Dietary departments contain a great many employees in the "staff cooks" to "chief cooks" range. A few astute cooks felt that the increase use of the "ingredient control system" was threatening the security of their positions and taking the challenge out of their careers.

b INGREDIENT CONTROL CHART


Conventional Inventory System
Main storeroom inventory brought up to established levels, incoming orders received and checked by stores clerk
Food is issued to staff access areas
Immediate requirement is moved to refrigerators, freezers and area cages
Cooks draw on supplies necessary to make recipies
Cooks,salad aides,bakers asst weigh out own ingredients and prepare conventionally
Prepared food either served or stored
Ingredient Control System
Ingredient mngt. Supervisor takes physical inventory at I.C.C.and places orders with central storage (who receive) to raise inventories to established level
Food is stored in controlled access areas
Three day requirement is moved to ingredient control area
Ingred. are weighed or measured & assembled to standardized recipes&issued to refrig overnight
Bulk supplies are issued to area cages
Cooks, salad aides, bakers assistants prepare recipes conventionally using only issued ingredients
Prepared food either served or stored

c INGREDIENT CONTROL AND KITCHEN STRUCTURE

Ingredient Control is changing the labor structure of dietary departments. Ingredient control is an inventory and stores control system that results in standard recipes, as demonstrated in the Ingredient Control Chart. Ingredient control allows the dietitian to control the content of all recipes and diets. Cooks receive only those ingredients which are to be used in the cooking process. The spicy tricks and judgement calls that cooks have traditionally used are now forbidden. However, once the system is well established and recipes test successfully, then the number of trained chefs and cooks in a cooking unit can be decreased as lesser skilled persons can be used to weigh, measure, transport and assemble ingredients and to perform some cooking functions.

d NEW ROLE OF COOKING STAFF

When ingredient control is introduced to a hospital it does not have to put an end to the role of the skilled cook. They can and should serve a role in the perfection of recipes and cooking techniques. Production supervisors and dietitians should involve their staff in the development process. Cooks have valid skills that can aid in the establishment of a satisfactory product, but only if those skills are called upon. There were observed cases of knowledgeable cooks were observed silently following management prescribed cooking methods, while being fully aware that such methods were completely unsound. It was the belief of these individuals that the offering of an opinion would be perceived as "troublemaking" with a consequent risk of loss of employment. Obviously, this is counterproductive to the effectiveness of the system.

e EDUCATION OF COOKS

There is no course to directly prepare cooks for work in hospitals. Neither the Nova Scotia Institute of Technology two year "journeymen" course nor the Vocational and Community College "Quantity Cooking Course" prepares cooks directly for institutional work. These courses do not provide any of the specific knowledge required to work in a dietary department. It would be of great benefit, if in the last six months of these courses options were available which would allow a cook to specialize. A specialized institutional option course would allow cooks entering the hospital system to gain specific knowledge which would increase their value to dietetic departments.

f BACKGROUND FOR THE DIETARY SUPERVISOR

As much as the role of the cook in hospital food service is shrinking, the role of the dietary supervisor or "Food Service Supervisor" is expanding. The responsibilities of these vital employees has been growing rapidly over the last decade. As ingredient control becomes more prevalent and the wage cost of dietitians and trained cooks rises, the role of dietary supervisors will become more important. Dietary Supervisors are the "quality control" watch of dietary departments, constantly testing and sampling food and monitoring all aspects of production. Food Service Supervisors assist dietitians in supervising activities of dietary department employees by performing most of the hands-on management, supervision of employees, implementation of procedures, and quality control functions. They can be responsible for completing patient menus and nourishments charts, assembling production figures and ensuring standards for quality are being followed. They are also responsible to ensure that patient trays are accurate and complete and production is proceeding on schedule. At some small nursing homes a Food Service Supervisor is in charge of dietetics with a dietitian making weekly visits.

g EDUCATION OF DIETARY SUPERVISORS

To become a Registered Food Service Supervisor (see job descriptions - food supervisor), an employee must complete a six to eight month correspondence course with the Canadian Food Service Supervisors Assoc-iation and apprentice with a certified dietitian for a period of two years There is also a two year "Food Service Supervisors "course offered at Nova Scotia Institute of Technology which accepts 12-15 students a year, with the success-ful graduates being immediately eligible for membership in the Canadian Food Service Supervisors Association. This is the only course in Nova Scotia. Most of the applicants are high school graduates with no previous experience.There are also some mature students, who have hospital experience and are sponsored by a local hospital. The annual tuition is approximately $1500.00 and students are eligible for student loans. This tuition is high considering graduates recieve an annual salary of only $17,674 . There is no federal assistance offered for this course. All graduating students have no trouble finding employment with almost all staying in the Halifax metro area.

h DIETARY SUPERVISORS OUTSIDE OF METRO

For the rest of Nova Scotia, the only source of these vital employees is from within the system. In order to become a food service supervisor a general worker must give up the security of the union as the majority of Food Service Supervisors are not unionized. The pay level for these supervisors is almost the same as that of the employees they supervise[14] . In some cases the pay level drops because the starting salary for a food service supervisor might be lower than the salary for a dietary aide with over five years experience. Finding employees who are willing to seek a higher pressure position which does not provide corresponding increase in renumeration is obviously difficult.

At one time there was a two year outreach program, sponsored by the Dept. of Education to train Dietary Supervisors in outlying areas. It was discontinued due to prohibitive expense and a lack of instructors who were willing to travel.

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[14] See Exhibit # 2

5.6 HIRING NEW EMPLOYEES

All urban hospital dietary departments have union representation. Care must be exercised to observe and rate the performance of a new employee, in the initial probationary period, before they receive tenure. The usual employment probationary period is three months. Many of these employees are working in an area independent of the rest of the staff and management, which hinders observation and makes rating of an employee's performance a difficult task. One or two bad eggs with job security can adversely affect the entire staff morale and create a situation that can take years to correct. Once an employee is given confirmed full time status, it usually takes approximately two years of careful documentation to terminate the unsatisfactory employee. There are situations where it has been suspected that an employee with a chronic health problem (bad back etc.) had managed to conceal the condition until becoming permanent full time staff member. High absentee rates due to illness and long term disability are demoralizing to fellow workers and have an inflationary effect on the dietary budget.

SECTION 6 GROUP PURCHASING

6.1 PURCHASING POWER

Nova Scotia hospital dietary departments had a budget of fourteen million dollars in 1988/1989. The purchasing policies and practices of the various hospitals studied were observed and reviewed in order to determine the effective use of this tremendous purchasing power.

6.2 GROUP PURCHASING

a GROCERY CATALOGUES

The Nova Scotia Association of Health Organizations is an association of hospitals which publishes very extensive grocery catalogues on a seasonal basis for the use of its members . Separate catalogues are produced for Cape Breton, North Mainland Nova Scotia, South Mainland Nova Scotia, and Halifax Metro Area. These catalogues lists hundreds of products for which private companies were invited to submit a guaranteed price for a three month period. The companies are given no assurances that any hospitals will purchase their products. The Nova Scotia Association of Health Organizations does not track their members to determine use of the catalogue. Of the hospitals reviewed in this study no dietary department had ever used these lists more than once. A common complaint was that the lists are too lengthy and cumbersome. Practical experience has determined that products can be purchased from local suppliers for equal or better prices. One dietitian was frustrated when, in attempting to place an order with MacKenzie Sales (a supplier listed in the N.S. South Mainland catalogue), she was told the Dartmouth based company did not deliver past Windsor. The effectiveness of the catalogue is in doubt.

b FIXED PRICE CONTRACTS

In other areas the Nova Scotia Association of Health Organizations has been more successful. The organization has negotiated a fixed price bread contract with Ben's Bakery Ltd. that is available to member hospitals. The program is widely utilized as is a similar contract for the supply of propane. Focusing on the bulk purchase of specific items appears to have succeeded where grocery catalogues have failed.

6.3 OBSTACLES TO GROUP PURCHASING

There are obstacles in the way of a comprehensive large scale bulk buying system. For instance, if a company like Ben's Bread has to guarantee delivery all over the province, the contract price has the cost of delivery factored into it. Hospitals only blocks away from the bakery may possibly be in a position to negotiate a lower price for bread as delivery costs are negligible; however, this practice undermines the solidarity of the buying group and should be discouraged if the best deal for the entire system is to be obtained.

Two food suppliers indicated that the reason why the prices quoted by them in the Nova Scotia Association of Health Organizations catalogue were high was that they had to negotiate independently with the big Halifax hospitals. The quoted price had to absorb the cost of delivery over a smaller target group without the benefit of the larger metro buying units.

Locally produced or available products or specialty items may also affect group purchasing power. Some hospitals may purchase locally out of a desire to keep the money within the surrounding community. Some hospitals may be able to get better deals on local products from local suppliers than from national firms. In Digby, for instance, they have enviable egg and fish prices and are perhaps the only hospital left that can purchase scallops at a low enough price to serve regularly.

6.4 REGIONAL CO-OPERATION

A factor in the way of regional co-operation is the competitive jealousies that are evident within some regions. Smaller hospitals are threatened by the feeling that regional hospitals are growing stronger at their expense and are resistant to efforts that are perceived as increasing the regional hospitals power.

6.5 WHERE GROUP PURCHASING CAN HELP

a TUBE FEEDINGS

Tube feedings are very expensive and a provincial contract could considerably help dietary department budgets. At twenty four to forty five dollars a day tube feedings are devastating to dietary budgets. Drug companies seemingly stagger contract expiry dates to prevent hospitals from acting together for a better price. The small hospitals may pay are more than twice what a large hospital will for the same product.

b DISPOSABLES

Perhaps the largest area for consideration in province wide dietary purchasing is the area of disposable products such as: napkins, cups, plastic cutlery, cling wrap, foil wrap, foil containers, and lids of all description (hospitals also use huge quantities of disposables outside dietary). The Nova Scotia Association of Health Organizations is currently looking into this area in hope of realizing some savings for its members. Since they have no warehouse or shipping facilities there are some logistical difficulties to having a constant supply.

6.6 SUMMARY

Bulk buying should be developed in one product area at a time. Tube feeding supplies and disposables are the first areas that should be added. For appropriately selected items hospitals close to the suppliers should be requested to participate in bulk buying schemes for the good of the system in spite of local efficiencies. Any proposed scheme has to have the support of the participating hospitals and should be presented in a way that does not seemingly undermine the power base and decision making ability of individual hospitals.

SECTION 7 CAMP HILL VETERANS HOSPITAL

7.1 BACKGROUND

This review of Camp Hill Veterans Hospital Dietary Department is at the specific request of the Nova Scotia Royal Commission on Health Care.

Camp Hill Veterans Hospital was funded by the federal government of Canada to service the needs of our aging veterans. From the outset, the dietary department was designed to function as a commissary for metropolitan hospitals. Obviously plans changed, for the proposed massive freezers and fridge space required for commissary service were not built. The production department, however, is still of the scale required to conduct a commissary business.

The consultant viewed Camp Hill Hospital on two different occasions, once in October and once in December, with each visit lasting two days. The **opinions offered are based solely on observation.**

7.2 CONSTRUCTION

The dietary department of this hospital has had a great many construction related problems. Along with equipment malfunction problems, and the industrial rash problem due to inadequate air replacement the kitchen has other deficiencies.

The kitchen floor, for instance, is not of the standard required for a health care establishment. The tiles are not able to hold up to the weight of some of the mobile equipment used in modern hospital kitchens, consequently, tiles break constantly and must be replaced. The tiles were not glazed (or sealed) due to a belief that they would then be dangerously slippery and so have more of a propensity to show dirt. The combination of beige tiles and black groat makes the floor appear even worse than it is.

The Camp Hill Kitchen is equipped with the "Kap Kold Central Commissary System"[15] by Groen Division of Dover Corp. This was the first system of its kind to be implemented in Canada.

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[15] Kap Kold Manual - appendix 4

7.3 STAFFING

Some Camp Hill kitchen problems are labor related. The staff of the old and declining Camp Hill hospital moved intact to the new kitchen. There is staff resistance to ingredient control and a lack of faith in the equipment that has malfunctioned.

A project manager was brought in from Alberta to coordinate the cook/freeze operation, but since the two production positions under her (production dietitian and production supervisor) were left unfilled the project manager has been functioning as the production supervisor. The wisdom of spending approximately $1,500,000 on construction of this kitchen, and then hiring a project manager, only to understaff at a management level, is in doubt.

7.4 FOOD QUALITY

Based on observations of the consultant, there appeared to be a definite and distinct lack of sound culinary practice exercised in the Camp Hill kitchen. All foods being rethermalized for service and being put in the convection ovens were sealed with a layer of cling wrap and another layer of aluminum foil. When food is completely sealed in this manner, surplus moisture can not escape resulting in all dishes (whether previously baked, broiled, fried, or boiled) steaming and losing texture. The resulting product is weepy and waterlogged. In some cases, the cling wrap melts and sticks to the warming insert.

Most production items were overcooked before they were frozen and so had no chance of being adequate when reconstituted. The consultant timed the preparation of meat sauce. Ground beef was cooked for over 40 minutes to the point of doneness that the meat was boiling in its own juices (boiling toughens meat and destroys nutrient value), the liquid from the meat was poured off and Campbell's Tomato Soup added and the mixture was boiled again. In all, this dish was over 1 hour in the cooking.

It was difficult to perceive why farina (cream of wheat) was being precooked and frozen, when it takes less time to make from scratch than to rethermalize.

Food presentation in patient meals items appeared to be weak. For instance as a part of the last lunch patient meal the consultant observed sheppards pie (comprised of ground beef, carrots and mashed potatos) was the primary production meal with carrots and mashed potatos being served on the side as a vegetable. This makes neither common sense nor nutritional sense.

Proper food rotation procedures were not practiced on the belt line. For instance, when a hotel pan (on the beltline) was nearly empty, these inserts were topped up with food that had just been rethermalized. The result of this practice is that the food in the bottom of the insert does not get rotated and by meals end is 1.5 hours old. The proper procedure is to change the old insert for the new insert and then use up the rest of the older batch.

7.5 CONCLUSION

It is the conclusion of the consultant that the physical problems as a result of construction deficiencies can be corrected. The Kap Kold system, itself, is a well designed central commissary system. Based on the observed lack of supervision, the absence of communication with cooking staff, and the poor quality of the product, the consultant believes that the management is currently unable to adequately control production.

SECTION 8 SECURITY IN DIETARY DEPARTMENTS

8.1 BACKGROUND

Security in hospital kitchens was observed with various factors in mind: separation of function; access by outsiders; staff security procedures; and cafeteria cash handling procedures.

8.2 OBSERVATIONS

Security from theft is well addressed in the hospitals that were visited. Receiving doors were locked, professional receivers (porters and stores clerks) were evident and documentation was up to date. The internal security systems had separated the ordering function from the receiving and payment function. Most hospitals operate on a two or three week patient menu rotation (with yearly revisions). Because of inflexible demand for patient meals and the availability of accurate production and consumption records, any unusual transactions or unusual usages are readily apparent. Salespeople and delivery personnel are prohibited from entering hospital kitchens for security and sanitation reasons. Fridges and freezers are kept locked when not in production use. Where possible, an employee is made personally responsible for the security of their own area. Only the ward fridges which contain beverages, biscuits, and maybe fresh fruit are left uncontrolled. These fridges are necessary for the comfort of patients. Nursing staff is requested to make sure only patients (not staff) consume these items. In most kitchens central stores is separated from a smaller and more easily controllable "day storage" area. Consumption of food and beverages in kitchens, by staff or anyone else, is forbidden. Employees are required to leave handbags and kit bags in the staff change room, which is separated from the kitchen.

8.3 PAYMENT FOR MEALS

In past hospitals fed their staff the overproduction for patient meals for free or nominal amounts. Currently, there is some loss of revenue due to difficulties in collection for meals received. The familiarity in the smaller hospitals makes it more difficult for employees to enforce rules and consequently employees of smaller hospitals were less likely to pay for meals. It was consistently found that when it comes to paying for meals, certain job classes are consistently more reluctant than others. Invariably, doctors lead the list of reluctant customers, with Operating Room staff (no pockets/no money) next in line and then kitchen staff.

8.4 CAFETERIA SECURITY

Nova Scotian hospital cafeterias grossed $9,500,000 last year [16]. Cafeterias, by their nature, are a cash business. It is difficult to make cafeterias completely secure. Most offerings of cafeterias are not unitized (pre-portioned), consequently, it is impossible to accurately predict what the revenue total will be. Cafeterias sell a variety of products: fountain drinks, coffee, tea, baked goods, salads, short order, daily specials, and desserts. A substantial portion of these items are drawn from the active kitchen inventory with no documentation and no direct separation from the patient meal production. These uncontrolled products make theoretical revenue difficult to predict. Some products are only carried (in inventory) for sale in the cafeteria: cans of soda, individual yoghurts, portion packed cheese, hamburger patties, and fast food donuts. These products can be tracked as indicators of actual paid sales. It is difficult for management allocate time to track cafeteria cash, except in situations where a problem is perceived. The advent of the computerized cash register has substantially helped in controlling receipts and tracking sales. Most sales are entered in front of the customer, the total registers, the customer pays and change is given. Any deviation from this procedure will be eventually noticed. There are many ways for cashiers to breach security for their own purposes. A cashier can always not charge a friend. They can wait for an opportunity to pocket cash that has been left as payment for beverages between shifts, or look for exact change customers and on the pretext of putting the funds aside to be rung in at a less busy time wait for a more convenient moment to claim the funds. Any unusual situation, like a cash register failure, or one employee assuming another cashiers till (due to illness or emergency), can allow an opportunity to pilfer. Once, it was observed, that an employee was placed on cash, without instruction on her first day in that area. During the noon hour rush, the trainee , not being familiar with prices made errors entering the prices in the cash register. Subsequent mistakes were made trying to fix the original errors, until eventually a seasoned cashier came in and took over. That is the type of unusual situation that should be avoided The cash register taped records were muddled and difficult to sort out. A seasoned employee would be aware the actual total of the days receipts will not be known.

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[16] **Cash Recoveries see exhibit # 1 -table 1.13, also charts 1.13 &2.13**

8.5 RECOMMENDATIONS FOR CAFETERIA SECURITY

The best security method available is still to install computerized cash registers that are capable of tracking the sales of various categories. It is important to be highly selective in choosing cashiers. Providing cashiers with uniforms without pockets is a proven money saver. Cashier stations should be positioned in an area where they can be observed from all directions. Cashier stations should be located away from corners and walls, a free standing island is effective position.

SECTION 9 CAPITAL CONSTRUCTION

9.1 BACKGROUND

In the course of investigations, the consultant visited the Camp Hill Veterans Hospital and South Shore Regional Hospital. It was immediately evident that the kitchens of these hospitals in which construction was completed within the last year were seriously flawed. Though not in the specific mandate of this project, a review of the Capital Construction of hospital kitchens was undertaken.

9.2 UNIQUE CONSTRUCTION

Kitchen construction is a **unique** type of construction and should receive the special attention this uniqueness merits. Kitchen construction is very expensive. The basic construction requires well drained tiled floors, expensive venting and air replacement units, extensive plumbing, and electrical work. The finish construction requires all scrubable surfaces, very expensive equipment, and fixtures.

9.3 INFLEXIBLE NATURE

Finished kitchens are **inflexible**. Dishwashers, drains, stove venting, sinks, walk-in fridges and freezers cannot be moved, consequently once installed the position of this equipment is permanent. The cost of moving equipment made necessary by poor design or improper installation is enormous. At times it may not even be possible to move the equipment. Even operating rooms, which cost as much to build and more to equip, are not nearly as inflexible to change as are kitchens. After all most operating room equipment is moveable.

9.4 CURRENT CAPITAL CONSTRUCTION

Presently, there are many kitchens that have just been completed, are under construction, or are planned. Camp Hill, Southshore Regional, Dartmouth General, and Saint Martha's all have new kitchens. Valley Health Services, Cape Breton Regional, Issac Walton Killam Children's Hospital, Grace Maternity and the Halifax Infirmary are in the planning stages.

9.5 DIETARY IMAGE PROBLEMS

Traditionally, hospital kitchens were relegated to the back or basement of the building. Cafeterias were windowless rooms located near the physical plant or storerooms. This has created a problem of image for the kitchen function. The Dietary Department has been perceived as only of secondary importance. The feeding of patients is not considered primary health care, but rather a secondary form of care. Because of the "non-essential" image of dietary departments, it is often one of the areas that is first considered when capital budget cuts are made or if space is required for other purposes.

It may be time to re-evaluate this second class image. Kitchens are an important department of the hospital system. Kitchens are labor intensive and consequently, expensive areas to operate (second only to the nursing function in salary expenditures). Special diets are an accepted and expected part of most patient treatment. The improvement of cafeteria environment is an accepted important part of personnel motivation management. The Cafeteria is large revenue generating areas and any improvement in cafeteria operation is self evident.

9.6 APPROVAL AND TENDERING

The current procedures for construction of a new kitchen or for the upgrading of existing facilities are similar. Initially, a hospital seeks approval to plan from the Department of Health, appoints an architect and a food services designer to work with the Director of Dietetics and the Administrator to interpret the objectives and document the present needs and future direction of the dietary department of the hospital. Upon the approval of hospital's board, plans are submitted to the Department of Health for review. Plans approved by the Department of Health are submitted to Government Services for tendering and subsequent construction. Upon satisfactory completion of the project, government services hands control of the hospital to the administrator and the Director of Dietetics begins kitchen operations.

Government services does not want any interference after Department of Health approval is given to a project. During construction the hospital administrator, the director of dietetics and the dietetic consultant for the Department of Health are denied access to the project and are not consulted if changes are made to the kitchen plan. In one recent case the finished kitchen was three feet smaller than that shown on the plans and there was no consultation with the designer or the consultant to see if the reduction would affect function. Camp Hill Veterans Hospital was planned and built without the input of Nova Scotia Department of Health officials even though they would become responsible for operating the finished facility. We would strongly recommend that when one of the inevitable design alterations takes place during construction affecting the dietary department that the kitchen design consultant and the dietetic consultant should be brought in to see if the alteration seriously affects the functional ability of the kitchen.

9.7 LONG TERM COST OF ERRORS

Dietary department labor costs are a large part of any hospitals wage and salary budget. If design flaws and/or installation errors occur, these shortcomings are paid for everyday in increased steps, and consequently, higher wage costs. Examples of serious and costly mistakes are evident in the kitchens of Camp Hill and South Shore Regional hospitals. Both kitchens have raised drains, dysfunctional dishrooms, bottlenecks in traffic areas, and a list of construction deficiencies that can not be easily remedied. South Shore Regional still had over 32 construction and installation deficiencies in the dietary area after opening. The most serious deficiency is that the dish washing machine was installed in the wrong position in the dishroom. The resulting traffic bottleneck [17] creates a situation of potential hazard to employees and sanitary conditions that are less than acceptable for a health care establishment. In its present and very permanent position the automatic dish rack feed will not function and manual rack feeding is required.

9.8 EQUIPMENT FAILURE

There is a high incidence of equipment malfunction in the new kitchens that were visited. Though a significant percentage of equipment failure is caused by inadequate installation, there are other contributing factors. New equipment has more computerized components than was previously the case. The heat and steam generated in kitchens affects the computerized components of modern equipment, consequently there is greater likelihood of breakdown than there was with the older mechanical counterparts. Allowance for this problem should be made when planning the venting and air replacement systems of kitchens.

In December, some of the kitchen staff members at the Camp Hill Hospital were found to have a skin condition[18] which was supposedly the result of unusually dry air in the kitchen. Apparently the design of the air replacement system of the kitchen was flawed resulting in inadequate air flow in a specific area of the kitchen.

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17 See photos of dishroom Appendix # 8.

9.9 ASSEMBLING EQUIPMENT

To assemble the equipment necessary for a hospital kitchen requires a great deal of lead time. Usually equipment is tendered over a year, sometimes two years, before installation, as is the case with the Camp Hill Hospital. The kitchen equipment was delivered onsite two years before installation. It was reported to the consultant that this equipment sat in the new underground parking garage for over a year, during which time it was exposed to concrete dust and Nova Scotia salt air. In addition, during an attempt to treat the kitchen floor, the equipment was exposed to muratic acid, which leaked through the parking garage ceiling and on to the equipment. Is it any wonder almost every major piece of equipment in Camp Hill kitchen has malfunctioned since opening? If this tendering practice is to continue, perhaps a storage facility could be set up to protect equipment until needed.

9.10 SUPPLY AND INSTALLATION

Suppliers of kitchen equipment have expressed concerns about the current process. At this time, the single successful equipment supplier provides and installs all equipment for a proposed kitchen. All equipment comes to Nova Scotia from at least Toronto and usually further. Hospitals often want specialized equipment with which no one in this area has previous experience. Consequently, in order to get the contract suppliers are required to deal with a significant percentage of equipment for which they have no previous experience or expertise. The local equipment suppliers have to bring in, install, and service the specialized equipment. The local suppliers are sales representatives (sometimes service representatives) of the equipment manufacturers but usually do not employ anyone who has been factory trained in the installation, use, maintenance and repair of this equipment. Split tendering and dealing direct with factory representatives when acquiring new technology could assist in achieving more satisfactory results.

9.11 EQUIPMENT GUARANTIES

The equipment contractors feel the length of required guaranties are unrealistic, because the equipment is ordered so far in advance of construction, often the manufacturers guaranties are near to expiry or have expired before the machine has been properly tested. The suppliers are then expected to absorb repair costs. In order to protect themselves against the possibility of such a situation, suppliers naturally increase the amount of the tendered bid. Consideration should be given to meeting with the equipment suppliers to work out this problem.

9.12 OVERBUILDING OF KITCHENS

The newly built kitchens and the plans for proposed kitchens that were viewed, all appeared to be designed to meet the future needs of the hospitals. For example, Camp Hill kitchen is large enough to service the proposed Infirmary, and the Southshore Regional was built to service a possible expansion in the nineties. The theory behind this overbuilding is that it is cheaper in the long run to build for a larger volume than is currently necessary. To make such a decision certain factors should be considered. A facility operating at less that 75% of capacity is labor inefficient. No matter how busy the kitchen is the power consumption is the same and the cleaning staff has to be as large. Greater distances between areas adds to daily labor costs and hinders supervision. Equipment purchased and installed now, for the future, could well be out of date by the time it is required, or as is often the case, the manufacturing company or the North American distributor is out of business making replacement parts unavailable. It would perhaps be better to allow for the expansion area, even to construct it to a point, but only complete the job when necessary.

9.13 DUPLICATION IN BUILDING

The motivation for some capital construction is worth investigation. Following are three examples that illustrate this point. These do not appear to be isolated incidents, they seem more the norm.

When the Nova Scotia Hospital was renovated, about ten years ago, it was enlarged to accommodate food service for the neighboring proposed Dartmouth General (which is currently the case due to a kitchen renovation at the Dartmouth General). The opening administration of Dartmouth General requested a kitchen of its own and one was built. Six years later, Dartmouth General is being renovated to a capacity that could also serve the Nova Scotia Hospital, if necessary.

A similar sort of situation is developing at the Isaac Walton Killam hospital, where a very functional kitchen is going to be torn out and a whole new kitchen is proposed that will service both the Isaac Walton Killam and the New Grace Maternity hospitals. It appears an obviously less costly renovation plan was scrapped in favour of the more expensive route.

The Camp Hill kitchen[18] has the production capacity to produce thousands of meals daily, but lacks adequate freezer and refrigerator storage. During the construction process the fridge and freezer space were cut back from the original design. This action has limited the originally proposed output.

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[18] Camp Hill as originally proposed was to serve as a commissary for Metro Hospitals.

9.14 MORALE IN NEW KITCHENS

It is a difficult task for the management of a dietary department to handle the workload associated with beginning operations in a new facility. Some of the unavoidable problems are: new schedules, new menus, new machine training, new job descriptions, and new staff. Some avoidable problems that have occurred in this hospital system are: faucets having no drains under them; fridges malfunctioning overnight (ruining yesterdays production); a brand new flat grill burning out its elements on first use; and the highest point of floors being the drain and the lowest point being the area under the dishwashing machine. The obstacles discussed above, created by the deficiencies, add to the task of maintaining a constructive staff morale and motivating employees to help make the new kitchen successfull.

9.15 SUMMARY AND RECOMMENDATIONS

The construction of hospital kitchensshopuld be reclassified to take into account the unique and inflexible nature of the construction. Any changes to the kitchen area are more crucial than changes to patient rooms, offices, or lobbies and should be approved by the kitchen designer and the dietetic consultant for the Department of Health rather than by the architect. A storage area could be arranged to house and protect newly purchased equipment until it is needed. A comprehensive review of the wisdom of the current tendering process should be conducted. Investigations into the motives for and merits of overbuilding kitchens should be undertaken.

SECTION 10 THE WAYS OF THE FUTURE

10.1 CONVENTIONAL AND CONVENIENCE SYSTEMS

The Conventional or "cook and serve" food system, where food is received in the raw, semi-prepared, and fully prepared state, and is processed for immediate service is now not the only option in institutional food service. Other viable systems are now available. Already the "cook and serve" system is augmented by the "Convenience Food System", where menu items are received ready to serve in a fully or partially processed state.

10.2 ALTERNATE SYSTEMS

Techniques and processes developed initially to deal with the problems that airlines had in serving meals in flight had a lot to do with the development of systems that would allow food to be held and later re-thermalized with maximum quality retention. In the "Ready Food System", food is received and prepared in a manner similar to a conventional system. After preparation, however, food items may be either refrigerated in a "cook/chill" application or frozen in a "cook/freeze" system and held for future use. Food may be held in bulk, individual pack, or plated form and reconstituted centrally or in a decentralized mode. The system options available to an institution under the various methods is contained in the chart "Work Flow Steps For Alternative Patient Food Systems"19 This and similar systems allow for certain efficiencies. Kitchens can operate one shift per day on five days of the week to produce seven days meals making supervision an easier task. Only a skeleton staff is needed to serve the meals on weekends and in off times. Large batch cooking allows a dish to be produced in such large quantities, that it is available for service on several different meal days. Food can be cooked to the proper consistency and when it is perfectly done, it can then be blast chilled or blast frozen to minimize the cellular damage (and subsequent loss of texture) that is evident in conventional cooling. Production and service are separated so that they can be addressed as separate functions. Food can be tested for taste, bacteria count and nutritional content before a decision is made to serve it.

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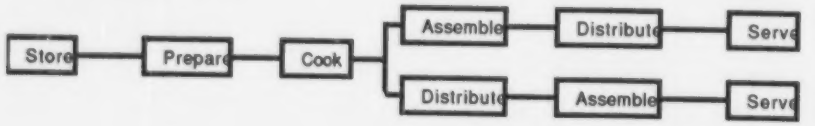
[19] appendix # 9

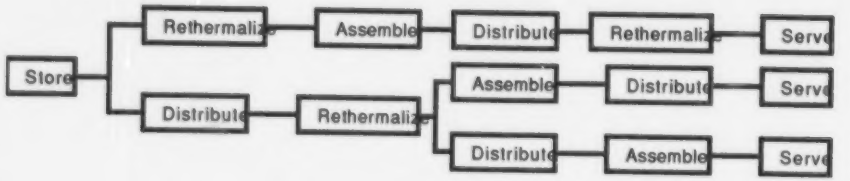
10.3 WORK FLOW FOR ALTERNATIVE FOOD SYSTEMS:

WORK FLOW STEPS FOR ALTERNATIVE PATIENT FOOD SYSTEMS

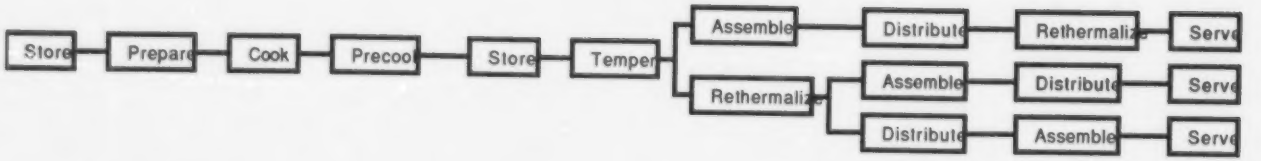
CONVENTIONAL



CONVENIENCE



COOK /CHILL



COOK /FREEZE

10.4 POSSIBLE PITFALLS

The employment of no one of the described systems guarantees to be problem free or produces a definitively better product than the other alternatives, for the real quality is in the skill of people using these systems.

If a "Ready System" is used there are pitfalls and limitations which should be noted. Some foods do not stand up to the extensive handling and processing. Toast for instance, puddings, and most breakfast items do not fare well. There is a danger in letting the system become more important than the food or the patient. This becomes evident when large batches of farina (Cream of Wheat) and rolled oats are cooked and frozen. There is no economy in this endeavor as it takes longer to re-thermalize than to prepare in the first place. Over cooking can be a problem, for if food is going to be cooked twice allowances have to be made for the effects of the freezer and the double cooking. In addition, larger batches are more difficult to flavor properly and if an error is made the resulting expense of spoilage is greater .

10.5 MERITS OF A COMMISSARY FOR HALIFAX

a OTTAWA COMMISSARY- INTRODUCTION

During this project the consultant had an opportunity to tour Canada's largest commissary which services fifteen different hospitals in the Ottawa area. Normal daily production is five tons of processed foods (finished foods) which are offered for sale to member hospitals up to one hundred fifty miles away. The food is portioned into hotel pan sized foil containers and plastic bags, blast frozen, and stored until needed. Three samples are taken from all batches. The first is sent to the lab for testing, the second is eaten the next day by the very workers who prepared it (discussion between staff and management follows) and the third is filed in the freezer for one year. Production is rarely for immediate demand, instead they cook to inventory, and then sell from inventory. Their production figures are adjusted, periodically, from sales volumes. Over three hundred products are offered (many are different variations of the same product to cater to specific special diets) and no hospital is required to buy any product they do not like. Individual hospitals still make up their own patient menu rotation to suit their patient profile.

b OTTAWA COMMISSARY- FUNCTION

This commissary is primarily in the business of producing patient lunch and dinner meals. Member hospitals still have extensive kitchens where breakfast is produced for patients, non-patient meals are produced for cafeterias and patient meals bought from the commissary are rethermalized, plated and served.

c OTTAWA COMMISSARY- HISTORY

The commissary, which is eight years old, had a rocky beginning. There was a lot of resistance on the part of member hospitals, they did not want to give up any autonomy. The commissary was imposed on the hospitals of Ottawa, by the Ontario Department of Health After two years, performance was still poor and there was a movement to close it down. Management was changed and the commissary has experienced growth ever since. There are no figures available as to the affect of their service on the food cost of member institutions. It is unfortunate that in this system the hospitals are not required to report this usefull information to the commissary.

d OTTAWA COMMISSARY- PROGRESSIVE LABOR POLICY

This facility has very progressive personnel management policies. The workers are involved in decision making, are rewarded for new ideas, are given cash bonuses every year at the Christmas party for perfect attendance. It is a marvel of motivation management. Each piece of equipment, has a sign on it with the name of the team member "owning" the machine. Employees are instructed in and are responsible for the maintenance and cleaning[19] of their particular machine.

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[19] See Appendix # 5

e A COMMISSARY FOR HALIFAX

Halifax is the ideal place to have a commissary. Almost one half of the yearly dietary budget is allocated to metro. Camp Hill kitchen is already built and it has a very large production capacity. To convert Camp Hill to a commissary would primarily take the addition of refrigeration and freezer capacity, plus loading and shipping facilities. This would not be a large expense. There are many advantages to commissaries. Expert help can be concentrated in one location. Standardization of products, procedures, and practices can be developed for the dietary kitchens across the province. The large volume of product make test kitchens and lab facilities affordable. Food could be produced for hospitals undergoing construction or renovations in their dietary department. Bulk buying and distribution of tube feeding chemicals and disposables can be administrated through the commissary. It is our opinion the system as whole would benefit from a successful commissary.

f OBJECTIONS TO A COMMISSARY

There have been and will be objections to any form of co-operation and unless decision to operate a commissary is imposed on the local hospitals it will never be a reality. An objection that will come up is that it is too late to build a commissary "we have already missed the boat"," we should have built it five years ago" (presumably before the Dartmouth General, and before the plans were finished for the I.W.K.-Grace maternity project). In addition, it will be suggested that "cook/freeze" product is poor and "cook/chill" and even "cook/chill/cold plating" is the direction to go or that these new technological systems are all still too experimental to venture into at this time. Another objection is that since participating hospitals still need kitchens, therefore a commissary is a redundant expense.

g PROPOSED FUNCTION OF A COMMISSARY IN HALIFAX

The commissary should try to fill the function of producing food for patient meals with an emphasis on special diet meals. The commissary should not try to be all things to everyone. A select, well-defined, limited function operation stands the best chance of success. The commissary should not try to produce breakfast, or cafeteria food (except for Camp Hill). From observations made cook/freeze like any other system is only as good as the the skill of the producers and the care taken in rethermalization in the receiving hospital. It is possible to integrate cook/freeze with a cook/chill/cold plating system for service to any of the neighboring hospitals which would prefer to go that route. If the products are good and can be purchased at a lower cost than producing in house then hospitals will purchase and the commissary will be successful. When the primary function is operating efficiently new markets can be developed by producing frozen meals for sale to outlying hospitals.

H ALLEVIATING THE VICTORIA GENERAL HOSPITAL FOOD SERVICE PROBLEM

A commissary could assist in dealing with one huge problem for which there seems no other evident solution. The Victoria General Hospital kitchen is aging and is extremely hard pressed to produce the approximately $8,000,000 in food produced there each year. They work miracles every day just to produce the necessary volume, given some formidable problems. There is only enough freezer space for one and a half days storage, dairy products are delivered every day due to limited storage space, over 650 trays are assembled per meal and there is no room to put a second belt line. There is no area available for a much required expansion, and the cost of constructing the kitchen elsewhere is prohibitive. If the Victoria General Hospital could buy their **patient meals** from a commissary the existing space could be redesigned to handle production of non-patient meals, breakfast, and nourishments. Any other plan addressing the Victoria General Hospital problem would probably have a larger price tag than this possible solution. Alleviation of the Victoria General Hospital situation is reason enough to consider a commissary.

SECTION 11 GLOSSARY

Centralized Tray Assembly	The tray assembly and food supply areas are in close proximity to each other in the main kitchen area. Trays leave the central area completely assembled.
Consultant	For the purposes of this report the consultant will refer to Mac Lean Hospitality Consultants Limited and its agent J. Ross Mac Lean. Mac Lean Hospitality Consultants Ltd., 6289 Willow Street, Halifax, Nova Scotia, B3L 1P1, 902-423-5835
Convenience Food System	Menu items are received fully or partially processed These items may be supplied in bulk packs or individual packs, or completely pre-plated entreés. They may be received in a frozen or refrigerated state. Final processing may be centralized or de centralized.
Conventional Food System	Food is received in the raw, semi-prepared, and fully prepared state, and is processed for immediate service. Conventional can also be referred to as "cook and serve".

Cook/ Chill Food System	Cook/chill refers to the preparation of entreés in a conventional manner followed by blast chilling of the product. This rapid chilling (to approximately 90 minutes minimizes bacterial growth allowing the food to be held under controlled conditions, a maximum of 5 days. Production can thus be separated from service 5 day (Monday to Friday) production with 7 day service to patients and staff.
Cook Freeze	This system is similar to cook/chill, but utilizes circulating cold air (-70°) to chill the food to -10° C in about 90 minutes. The frozen food has a long storage life and is easily transferable.
Cold Plating	With a cold plating system, patient trays are assembled with food and stored in a cart in a refrigerated unit. Prior to meal service, the food is rethermalized directly on the plate and the trays are delivered to the patient' bedside.
Equipment	Implements used in food storage, production, delivery, and service. Much of this equipment is not moveable.

Equivalent Meal	To determine the proper of non-patient meals served, a ratio of revenue from food sales and calculated selling price or cost compared to a predetermined weighted average selling price per meal is used. The calculation is similar to the calculation for meal days as defined in the "Guide for Operation of the Dept. of Dietetics.
Facility	The physical building in which the institution operates.
Function	Sets of activity necessary to carry out a definable mission over an extended period of time.
Functional Program	A description of activities, processes, people, and equipment needed to perform a service at a projected work-load level.
Gross Expenses	Gross Expenses are defined as raw food expense, plus non food products required for food service (napkins, dishes, etc.), plus total food service wage expense.
Gross Meal Day	Equals the sum of: the patient meal days; the student day meal count; the meals shared with other institutions; and the non-patient meal day count (i.e.cash recoveries & non-cash recoveries divided by meal day value).

Guidelines	Guiding information or recommended procedures. Priorities, standards, goals, and objectives may be added to guidelines.
Ingredient Control	Ingredient control refers to the supervised food inventory storage and issue within a dietary services department.
Meals on wheels	A system by which meals prepared by the dietetics department are delivered to locations outside the hospital, as in the case of specific types of outpatients.
Methodology	A technique for analyzing a process and developing procedures and methods for its application.
Net Costs	Net Costs are defined as Gross Costs minus non-patient revenues (paid meals).
Patient Meal Day	The sum of the patient census (taken at midnight) and the one third of the outpatient meal count.
Ready Food System	Food is received and prepared in a manner similar to a conventional system. After preparation, however, food items may be either refrigerated in a "cook/chill" application or frozen in a "cook/freeze" system and held for future use. Food may be held in bulk, individual pack, or plated form and reconstituted centrally or in a decentralized mode.

Rethermalization	The process of reheating of previously cooked food (also referred to as reconstitution). The phrase "end heating" is used to define the location at which heating of food items takes place.

Exhibit # 1

Department of Health

Cost Performance Information

Mac Lean Hospitality Consultants Limited

Exhibit # 1 - Tables of Dietary Cost Performance 1982-1988

Table 1:1	Raw Food Per Patient M.D.					0.00
	Gr.1	Gr.2	Gr.3	Gr.4	V.G.	Total
82/83	3.88	4.21	4.23	5.51	6.43	4.96
83/84	4.64	4.15	4.48	4.99	6.61	4.93
84/85	4.39	4.58	4.36	5.21	7.23	5.09
85/86	4.67	4.74	4.71	4.91	3.09	4.52
86/87	4.96	4.90	4.30	5.28	4.19	4 68
87/88	5.24	4.98	4.56	5.73	7.76	5.48

Table 2:1	Raw Food Per Meal Day					% > 82/83
0.00	Gr.1	Gr.2	Gr.3	Gr.4	V.G.	Total
82/83	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
83/84	19.59%	-1.43%	5.88%	-9.49%	2.78%	-0.51%
84/85	13.31%	8.76%	3.02%	-5.53%	12.40%	2.56%
85/86	20.44%	12.53%	11.39%	-10.98%	-51.95%	-8.83%
86/87	27.99%	16.37%	1.74%	-4.17%	-34.82%	-5.62%
87/88	35.19%	18.21%	7.83%	3.98%	20.62%	10.45%

Table 1:2	Net Salaries+Expenses Per Patient M.D.					0.00
	Gr.1	Gr.2	Gr.3	Gr.4	V.G.	Total
82/83	14.44	15.39	16.89	16.58	22.24	17.36
83/84	17.56	15.70	18.11	17.79	22.28	18.37
84/85	17.49	17.03	17.15	18.63	23.48	18.58
85/86	19.11	18.19	18.29	18.96	11.91	17.53
86/87	20.42	18.20	18.52	19.38	15.84	18.41
87/88	21.07	18.81	18.85	21.35	21.19	20.05

Table 2:2	Net Salaries+Exp. Per Meal Day					% > 82/83
	Gr.1	Gr.2	Gr.3	Gr.4	V.G.	Total
82/83	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
83/84	21.65%	2.06%	7.20%	7.34%	0.21%	5.82%
84/85	21.13%	10.68%	1.53%	12.39%	5.59%	7.04%
85/86	32.37%	18.25%	8.30%	14.39%	-46.44%	1.00%
86/87	41.42%	18.27%	9.64%	16.92%	-28.78%	6.07%
87/88	45.98%	22.29%	11.64%	28.80%	-4.72%	15.48%

Table 1:3	Gross Expenses Per Gross M.D.					0.00
	Gr.1	Gr.2	Gr.3	Gr.4	V.G.	Total
82/83	5.13	5.24	4.43	6.36	6.20	4.97
83/84	5.35	5.33	4.67	5.81	5.69	5.00
84/85	5.92	6.18	4.81	6.08	6.24	5.68
85/86	5.25	5.63	4.85	5.68	6.17	5.31
86/87	5.77	5.81	5.10	5.90	5.49	5.64
87/88	6.10	5.94	5.49	6.33	6.72	5.92

Table 2:3	Gross Expenses Per Meal Day					% > 82/83
	Gr.1	Gr.2	Gr.3	Gr.4	V.G.	Total
82/83	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
83/84	4.38%	1.73%	5.39%	-8.57%	-8.22%	0.53%
84/85	15.37%	18.10%	8.63%	-4.32%	0.60%	14.28%
85/86	2.41%	7.46%	9.38%	-10.73%	-0.53%	6.93%
86/87	12.47%	11.01%	15.02%	-7.22%	-11.54%	13.56%
87/88	18.90%	13.41%	23.81%	-0.45%	8.42%	19.08%

Table 1:4	Gross Salaries Per Gross M.D.					0.00
	Gr.1	Gr.2	Gr.3	Gr.4	V.G.	Total
82/83	8.88	9.36	7.09	7.07	7.79	7.47
83/84	11.42	9.30	7.60	8.93	7.67	8.24
84/85	10.96	9.65	6.98	9.12	8.38	8.24
85/86	12.93	11.23	9.41	10.99	8.63	9.98
86/87	13.51	11.04	9.53	10.98	8.63	10.01
87/88	14.05	11.78	10.23	12.68	11.33	11.41

Table 2:4	Gross Salaries Per Meal Day					% > 82/83
	Gr.1	Gr.2	Gr.3	Gr.4	V.G.	Total
82/83	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
83/84	28.56%	-0.62%	7.28%	26.31%	-1.65%	10.43%
84/85	23.37%	3.18%	-1.54%	29.00%	7.51%	10.34%
85/86	45.57%	20.07%	32.71%	55.41%	10.68%	33.65%
86/87	52.14%	18.04%	34.46%	55.29%	10.77%	34.04%
87/88	58.17%	25.88%	44.31%	79.24%	45.30%	52.90%

*D.O.H. method for obtaining net meal days standardized to pre-1986 procedure to allow comparison

Exhibit # 1 - Tables of Dietary Cost Performance 1982-1988

Table 1:5	Net Raw Food Cost					(thousands)
	Gr.1	Gr.2	Gr.3	Gr.4	V.G.	Total
82/83	295	649	2533	2707	1572	7755
83/84	325	658	2748	2428	1557	7716
84/85	348	747	2758	2561	1807	8221
85/86	367	786	2852	2373	760	7138
86/87	377	858	2596	2509	1038	7378
87/88	396	894	2863	2686	1907	8746

Table 2:5	Net Raw Food Cost					% > 82/83
	Gr.1	Gr.2	Gr.3	Gr.4	V.G.	Total
82/83	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
83/84	10.45%	1.46%	8.50%	-10.33%	-0.94%	-0.50%
84/85	17.99%	15.18%	8.88%	-5.38%	14.96%	6.01%
85/86	24.42%	21.16%	12.59%	-12.32%	-51.65%	-7.96%
86/87	28.09%	32.18%	2.51%	-7.33%	-33.97%	-4.86%
87/88	34.43%	37.73%	13.04%	-0.78%	21.31%	12.77%

Table 1:6	Net Meal Days					(thousands)
	Gr.1	Gr.2	Gr.3	Gr.4	V.G.	Total
82/83	76	154	599	491	244	1564
83/84	70	159	614	486	236	1564
84/85	79	163	633	492	250	1617
85/86	79	166	605	484	246	1579
86/87	76	175	603	475	248	1577
87/88	76	179	628	468	246	1597

Table 2:6	Net Meal Days					% > 82/83
	Gr.1	Gr.2	Gr.3	Gr.4	V.G.	Total
82/83	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
83/84	-7.64%	2.94%	2.47%	-0.92%	-3.62%	0.01%
84/85	4.13%	5.90%	5.69%	0.16%	2.27%	3.36%
85/86	3.31%	7.67%	1.08%	-1.51%	0.62%	0.95%
86/87	0.07%	13.58%	0.75%	-3.29%	1.30%	0.80%
87/88	-0.56%	16.52%	4.83%	-4.58%	0.58%	2.10%

Table 1:7	Gross Meal Days					(thousands)
	Gr.1	Gr.2	Gr.3	Gr.4	V.G.	Total
82/83	84	181	933	709	521	2427
83/84	80	195	964	691	546	2476
84/85	89	201	989	723	544	2546
85/86	91	208	949	690	506	2442
86/87	89	220	950	695	558	2512
87/88	88	221	907	637	444	2297

Table 2:7	Gross Meal Days					% > 82/83
	Gr.1	Gr.2	Gr.3	Gr.4	V.G.	Total
82/83	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
83/84	-4.80%	7.76%	3.38%	-2.44%	4.80%	2.03%
84/85	6.28%	11.45%	6.02%	2.05%	4.38%	4.92%
85/86	8.11%	14.96%	1.69%	-2.69%	-2.80%	0.66%
86/87	6.48%	21.57%	1.80%	-1.92%	7.24%	3.52%
87/88	4.99%	22.51%	-2.78%	-10.06%	-14.83%	-5.34%

Table 1:8	Non-Patient Meal Days					(thousands)
	Gr.1	Gr.2	Gr.3	Gr.4	V.G.	Total
82/83	8	27	137	157	185	513
83/84	10	28	138	162	185	523
84/85	10	29	155	175	173	543
85/86	12	33	152	156	173	526
86/87	13	36	191	183	209	631
87/88	12	33	165	160	180	550

Table 2:8	Non-Patient Meal Days					% > 82/83
	Gr.1	Gr.2	Gr.3	Gr.4	V.G.	Total
82/83	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
83/84	22.75%	4.17%	0.79%	3.17%	0.09%	1.78%
84/85	27.05%	10.70%	13.14%	11.87%	-6.63%	5.70%
85/86	54.65%	23.77%	11.14%	-0.30%	-6.76%	2.51%
86/87	68.58%	34.56%	39.19%	16.63%	12.56%	22.91%
87/88	58.74%	24.23%	20.44%	2.26%	-3.03%	7.20%

*D.O.H. method for obtaining net meal days standardized to pre-1986 procedure to allow comparison

Exhibit # 1 - Tables of Dietary Cost Performance 1982-1988

Table 1:9	Shared Meal Days					(thousands)
	Gr.1	Gr.2	Gr.3	Gr.4	V.G.	Total
82/83	0	0	68	18	0	86
83/84	0	8	74	0	0	82
84/85	0	9	70	0	18	96
85/86	0	9	76	8	18	111
86/87	0	9	79	5	18	110
87/88	0	9	76	7	18	110

Table 2:9	Shared Meal Days					% > 82/83
	Gr.1	Gr.2	Gr.3	Gr.4	V.G.	Total
82/83	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
83/84	0.00%	0.00%	8.05%	#######	0.00%	-4.55%
84/85	0.00%	0.00%	1.93%	#######	0.00%	11.84%
85/86	0.00%	0.00%	11.37%	-54.66%	0.00%	28.91%
86/87	0.00%	0.00%	14.95%	-74.16%	0.00%	27.68%
87/88	0.00%	0.00%	11.03%	-59.35%	0.00%	27.56%

Table 1:10	Student Meal Days					(thousands)
	Gr.1	Gr.2	Gr.3	Gr.4	V.G.	Total
82/83	0	0	129	43	91	263
83/84	0	0	139	43	125	307
84/85	0	0	131	56	103	290
85/86	0	0	115	42	69	226
86/87	0	0	77	33	84	194
87/88	0	0	38	1	0	40

Table 2:10	Student Meal Days					% > 82/83
	Gr.1	Gr.2	Gr.3	Gr.4	V.G.	Total
82/83	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
83/84	0.00%	0.00%	7.86%	0.21%	36.97%	16.69%
84/85	0.00%	0.00%	2.18%	30.05%	12.72%	10.41%
85/86	0.00%	0.00%	-10.69%	-3.31%	-23.70%	-13.99%
86/87	0.00%	0.00%	-40.12%	-23.80%	-7.43%	-26.12%
87/88	0.00%	0.00%	-70.29%	-96.98%	#######	-84.96%

Table 1:11	Patient Meal Days					(thousands)
	Gr.1	Gr.2	Gr.3	Gr.4	V.G.	Total
82/83	76	154	599	491	244	1564
83/84	70	159	614	486	236	1564
84/85	79	163	633	492	250	1617
85/86	79	166	605	484	246	1579
86/87	76	175	603	475	248	1577
87/88	76	179	628	468	246	1597

Table 2:11	Patient Meal Days					% > 82/83
	Gr.1	Gr.2	Gr.3	Gr.4	V.G.	Total
82/83	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
83/84	-7.64%	2.94%	2.47%	-0.92%	-3.62%	0.01%
84/85	4.13%	5.90%	5.69%	0.16%	2.27%	3.36%
85/86	3.31%	7.67%	1.08%	-1.51%	0.62%	0.95%
86/87	0.07%	13.58%	0.75%	-3.29%	1.30%	0.80%
87/88	-0.56%	16.52%	4.83%	-4.58%	0.58%	2.10%

Table 1:12	Total Net Salaries + Expenses					(thous.)
	Gr.1	Gr.2	Gr.3	Gr.4	V.G.	Total
82/83	1097	2369	10112	8139	5435	27152
83/84	1233	2489	11109	8656	5249	28735
84/85	1384	2777	10850	9162	5869	30042
85/86	1500	3016	11070	9169	2929	27684
86/87	1553	3182	11170	9203	3921	29029
87/88	1593	3376	11835	10003	5208	32014

Table 2:12	Total Net Salaries + Expenses					% > 82/83
	Gr.1	Gr.2	Gr.3	Gr.4	V.G.	Total
82/83	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
83/84	12.35%	5.06%	9.86%	6.35%	-3.42%	5.83%
84/85	26.14%	17.22%	7.30%	12.57%	7.99%	10.64%
85/86	36.75%	27.32%	9.47%	12.66%	-46.11%	1.96%
86/87	41.52%	34.33%	10.46%	13.07%	-27.85%	6.91%
87/88	45.17%	42.49%	17.03%	22.90%	-4.17%	17.91%

*D.O.H. method for obtaining net meal days standardized to pre-1986 procedure to allow comparison

Exhibit # 1 - Tables of Dietary Cost Performance 1982-1988

Table 1:13	Revenue Recoveries					(thousands)
	Gr.1	Gr.2	Gr.3	Gr.4	V.G.	Total
82/83	77	266	1376	1567	1853	5139
83/84	106	305	1519	1778	2040	5748
84/85	120	353	1860	2104	2076	6512
85/86	152	484	3126	2604	3297	9662
86/87	169	518	2987	2808	3964	10444
87/88	181	543	3489	2428	2796	9437

Table 2:13	Revenue Recoveries					% > 82/83
	Gr.1	Gr.2	Gr.3	Gr.4	V.G.	Total
82/83	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
83/84	36.85%	14.60%	10.41%	13.49%	10.10%	11.86%
84/85	54.38%	32.85%	35.20%	34.25%	12.04%	26.73%
85/86	95.68%	81.95%	127.25%	66.15%	77.95%	88.02%
86/87	117.63%	94.78%	117.10%	79.18%	113.91%	103.24%
87/88	133.07%	104.42%	153.60%	54.96%	50.92%	83.65%

Table 1:14	Total Gross Salaries + Expenses					(thous.)
	Gr.1	Gr.2	Gr.3	Gr.4	V.G.	Total
82/83	1175	2635	10747	9517	7288	31361
83/84	1339	2846	11838	10194	7289	33505
84/85	1503	3187	11664	10997	7945	35297
85/86	1648	3500	13522	11492	7489	37650
86/87	1721	3700	13892	11733	7885	38931
87/88	1773	3919	14254	12112	8004	40062

Table 2:14	Total Gross Salaries + Expenses					% > 82/83
	Gr.1	Gr.2	Gr.3	Gr.4	V.G.	Total
82/83	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
83/84	13.97%	8.00%	10.15%	7.12%	0.02%	6.84%
84/85	28.00%	20.96%	8.54%	15.55%	9.02%	12.55%
85/86	40.30%	32.83%	25.82%	20.76%	2.76%	20.06%
86/87	46.54%	40.43%	29.27%	23.28%	8.20%	24.14%
87/88	50.96%	48.73%	32.63%	27.27%	9.84%	27.75%

Table 1:15	Total Gross Expenses					(thousands)
	Gr.1	Gr.2	Gr.3	Gr.4	V.G.	Total
82/83	430	946	4135	4506	3229	13245
83/84	427	1037	4505	4019	3106	13093
84/85	527	1245	4762	4400	3390	14324
85/86	476	1168	4599	3914	3122	13279
86/87	515	1276	4842	4100	3063	13796
87/88	537	1314	4977	4034	2982	13843

Table 2:15	Total Gross Expenses					% > 82/83
	Gr.1	Gr.2	Gr.3	Gr.4	V.G.	Total
82/83	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
83/84	-0.63%	9.62%	8.95%	-10.80%	-3.82%	-1.15%
84/85	22.61%	31.62%	15.17%	-2.36%	5.01%	8.14%
85/86	10.71%	23.53%	11.23%	-13.13%	-3.31%	0.26%
86/87	19.76%	34.95%	17.09%	-9.00%	-5.13%	4.16%
87/88	24.83%	38.94%	20.37%	-10.47%	-7.66%	4.52%

Table 1:16	Total Gross Salaries					(thousands)
	Gr.1	Gr.2	Gr.3	Gr.4	V.G.	Total
82/83	745	1689	6612	5011	4059	18116
83/84	911	1809	7333	6175	4183	20412
84/85	976	1943	6902	6597	4555	20973
85/86	1172	2332	8923	7578	4367	24371
86/87	1206	2424	9051	7632	4822	25135
87/88	1236	2605	9276	8078	5023	26219

Table 2:16	Total Gross Salaries					% > 82/83
	Gr.1	Gr.2	Gr.3	Gr.4	V.G.	Total
82/83	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
83/84	22.40%	7.09%	10.90%	23.23%	3.07%	12.67%
84/85	31.11%	15.00%	4.39%	31.65%	12.22%	15.77%
85/86	57.38%	38.03%	34.95%	51.23%	7.58%	34.53%
86/87	62.00%	43.50%	36.89%	52.31%	18.80%	38.75%
87/88	66.06%	54.21%	40.30%	61.20%	23.75%	44.73%

*D.O.H. method for obtaining net meal days standardized to pre-1986 procedure to allow comparison

Exhibit # 2

Schedule of N.S.A.H.O.

Recommended Salaries 1988

Mac Lean Hospitality Consultants Limited

RECOMMENDED GUIDE FOR MANAGEMENT SALARIES

(recommended by the D.O.H. and the N.S.A.H.O.)

APRIL 1, 1989 - MARCH 1, 1990

HOSPITAL SUPPORT SERVICES (descriptions follow)	START	AFTER 1 YEAR	AFTER 2YEARS	AFTER 3YEARS	AFTER 4YEARS	AFTER 5YEARS
Chief Cook I	17,674	18,380	19,087	19,794		
Chief Cook II	19,063	19,826	20,589	21,352		
Chief Cook III	19,489	20,268	21,050	21,829		
Chief Cook IV	20,057	20,859	21,661	22,465		
Chief Cook V	20,803	21,635	22,469	23,301		
Chief Cook VI	22,001	22,882	23,763	24,644		
Chief Cook VII	26,630	27,871	29,112	30,355	31,598	
Food Supervisor I	17,674	18,380	19,087	19,794		
Food Supervisor II	19,063	19,826	20,589	21,352		
Food Supervisor III	19,489	20,268	21,050	21,829		
Director Dietetics I	32,004	33,641	35,279	36,916	38,556	40,195
Director Dietetics II	35,001	36,775	38,548	40,333	41,999	43,673.
Director Dietetics III	37,028	38,905	40,758	42,530	44,303	45,947.
Director Dietetics IV	39,938	41,893	43,827	45,665	47,377	49,006

DESCRIPTIONS

Chief Cook I	Chief Cook in Hosp.with upto 8,000 meal days/yr.
Chief Cook II	Chief Cook in Hosp.with 8,000 to 15,000 meal days/yr.
Chief Cook III	Chief Cook in Hosp.with 15,000 to 36,000 meal days/yr with a dietition
Chief Cook IV	Chief Cook in Hosp.with 15,000 to 36,000 meal days/yr.without a dietition
Chief Cook V	Chief Cook in Hosp.with 36,000 to 60,000 meal days/yr.with a dietition
Chief Cook VI	Chief Cook in Hosp.with 36,000 without a dietition OR 60,000 to 100,00 meal days/yr.
Chief Cook VII	Chief Cook in Hosp.with over 100,00 meal days/yr.
Food Supervisor I	On-the-job trained/responsible for an assigned area under the direction of a dietican or chief cook,in a hospital w/ 30,000 meal days
Food Supervisor II	Eligible for membership in the Cndn.Food Service Supervisors Assoc.employed in a hospital w/ 15,000 to 20,000 meal days w/out a dietitian and over 20,000 meal days w/a dietitian.
Food Supervisor III	Food Service II plus two years experience
Dir.of Dietetics I (P.Dt.)	In charge in Hosp. up to than 60,000 meals days/yr.
Dir.of Dietetics II	In charge in Hosp. w/more than 60,000 meals days/yr. w/out school of nursing (P.Dt. + 2 yrs experience)
Dir.of Dietetics III	In charge in Hosp. w/more than 60,000 meals days/yr. w/a school of nursing (P.Dt. + 5 yrs experience)
Dir.of Dietetics IV	In charge in Hosp. w/more than 150,000 meals days/yr. (P.Dt.+5 yrs experience OR M.Sc.)

Exhibit # 3

Comparison of Cost Performance

to Budgeted Figures 1987/1988

Mac Lean Hospitality Consultants Limited

Comparison of 1987/1988 Dietary Budgets Cost Performance

Name	Actual Salaries	Budget Salaries	Actual Expenses	Budget Expenses	Actual Recoveries	Budget Recoveries	Actual P.M.D.	Budget P.M.D.	Actual Gr. Total	Budget Gr.Total	Actual Net Total	Budget Net Total	Actual per N.M.D	Budget per N.M.D.
Annapolis	96,587	115,400	50,149	43,800	21,799	20,300	6,034	6,205	146,736	159,200	124,937	138,900	21	22
Bayview	17,766	29,000	9,245	9,300	286	450	1,394	1,600	27,011	38,300	26,725	37,850	19	24
E.K.M.	108,127	137,200	51,188	48,500	17,559	14,500	6,911	7,325	159,315	185,700	141,756	171,200	21	23
Eastern Mem.	66,203	65,000	30,888	24,400	10,528	9,100	4,315	3,500	97,091	89,400	86,563	80,300	20	23
Guysborough	52,264	33,800	21,092	16,100	2,816	3,600	3,477	3,000	73,356	49,900	70,540	46,300	20	15
Lillian Fraser	140,336	129,600	60,033	55,300	12,849	13,000	7,715	8,600	200,369	184,900	187,520	171,900	24	20
Musquodoboit	51,787	52,100	18,072	19,900	5,924	4,200	2,175	2,900	69,859	72,000	63,935	67,800	29	23
North Cumberlanc	39,068	32,900	12,583	14,000	61	130	2,469	2,500	51,651	46,900	51,590	46,770	21	19
Sacred Heart	127,716	141,800	49,878	44,200	21,228	17,400	7,231	7,000	177,594	186,000	156,366	168,600	22	24
St. Mary's	63,585	69,100	32,833	25,500	3,856	5,800	4,586	4,500	96,418	94,600	92,562	88,800	20	20
South Cumberlanc	68,138	70,000	37,975	32,100	12,589	15,900	4,905	4,500	106,113	102,100	93,524	86,200	19	19
Strait-Richmond	175,411	174,200	78,163	77,500	46,394	47,900	8,658	6,500	253,574	251,700	207,180	203,800	24	31
Twin Oaks	90,158	102,800	30,673	34,100	9,287	7,200	5,969	6,500	120,831	136,900	111,544	129,700	19	20
Victoria Co.	75,711	78,100	29,128	29,700	8,505	9,400	6,472	6,100	104,839	107,800	96,334	98,400	15	16
All Saints	188,341	196,600	110,175	73,800	16,959	17,400	13,262	11,000	298,516	270,400	281,557	253,000	21	23
Digby General	277,247	28,500	124,626	12,200	55,664	50,700	16,488	18,000	401,873	40,700	346,209	-10,000	21	-1
Eastern Shore	164,621	162,800	86,740	92,000	85,512	23,400	6,780	6,000	251,361	254,800	165,849	231,400	24	39
Fishermen's Mem.	308,066	439,100	159,114	172,000	67,641	72,500	21,704	22,000	467,180	611,100	399,539	538,600	18	24
Inverness Cons.	311,833	314,100	151,815	130,600	69,659	58,000	21,587	19,000	463,648	444,700	393,989	386,700	18	20
Queen's General	175,297	193,900	84,320	76,000	31,522	32,000	17,744	11,400	259,617	269,900	228,095	237,900	13	21
Soldiers Memorial	360,419	393,700	217,170	225,100	80,199	85,550	29,416	30,300	577,589	618,800	497,390	533,250	17	18
Sutherland-Harris	191,788	200,500	95,389	87,400	16,204	12,300	14,629	14,000	287,177	287,900	270,973	275,600	19	20
Western Kings	271,854	275,300	115,555	114,400	39,079	43,500	15,180	16,000	387,409	389,700	348,330	346,200	23	22
Colchester	578,829	638,900	333,760	333,300	154,572	172,600	49,882	49,000	912,589	972,200	758,017	799,600	15	16
Cape Breton Hosp	555,496	547,300	436,716	390,000	676,721	39,150	21,702	20,000	992,212	937,300	315,491	898,150	15	45
Dartmouth Genera	473,102	557,400	295,915	309,100	181,900	203,000	37,172	36,550	769,017	866,500	587,117	663,500	16	18
Glace Bay Comm.	651,410	548,000	293,833	268,300	136,648	145,000	32,049	34,000	945,243	816,300	808,595	671,300	25	20
Glace Bay General	503,018	444,800	231,577	220,400	91,743	68,200	32,617	27,100	734,595	665,200	642,852	597,000	20	22
Hants Community	400,789	425,100	225,517	214,600	102,428	110,200	25,341	28,000	626,306	639,700	523,878	529,500	21	19

Comparison of 1987/1988 Dietary Budgets Cost Performance

Name	Actual Salaries	Budget Salaries	Actual Expenses	Budget Expenses	Actual Recoveries	Budget Recoveries	Actual P.M.D.	Budget P.M.D.	Actual Gr. Total	Budget Gr.Total	Actual Net Total	Budget Net Total	Actual per N.M.D	Budget per N.M.D.
Highland View	407,805	414,200	203,054	205,300	82,171	79,800	26,451	30,000	610,859	619,500	528,688	539,700	20	18
New Waterford	358,541	343,100	182,103	162,300	69,437	66,700	20,540	20,000	540,644	505,400	471,207	438,700	23	22
N'Side/Harbourvie	923,184	938,100	442,315	428,600	163,506	174,000	57,424	58,000	1,365,499	1,366,700	1,201,993	1,192,700	21	21
Roseway General	284,444	303,700	203,919	189,700	217,756	53,600	11,481	12,600	488,363	493,400	270,607	439,800	24	35
St. Martha's	689,189	762,600	398,649	420,200	430,604	400,200	44,221	45,500	1,087,838	1,182,800	657,234	782,600	15	17
St. Rita's	769,204	741,400	333,302	375,900	178,262	225,300	40,678	45,000	1,102,506	1,117,300	924,244	892,000	23	20
Sydney City	824,668	803,300	388,711	338,000	282,056	291,300	47,070	49,000	1,213,379	1,141,300	931,323	850,000	20	17
Valley Health Serv	906,647	961,300	423,917	398,100	221,416	207,800	50,001	61,500	1,330,564	1,359,400	1,109,148	1,151,600	22	19
Yarmouth Regions	950,081	926,000	583,901	498,600	499,638	503,900	52,270	52,000	1,533,982	1,424,600	1,034,344	920,700	20	18
Camp Hill	1,886,580	2,010,900	983,518	996,900	456,877	478,500	115,104	126,308	2,870,098	3,007,800	2,413,221	2,529,300	21	20
Grace Maternity	685,486	700,200	364,790	263,900	240,786	263,900	43,233	37,000	1,050,276	964,100	809,490	700,200	19	19
Halifax Infirmary	2,172,161	2,094,800	979,665	959,800	558,346	689,800	104,638	117,365	3,151,826	3,054,600	2,593,480	2,364,800	25	20
I.W.K.	1,295,408	1,289,200	724,348	69,100	744,087	701,046	57,068	57,250	2,019,756	1,358,300	1,275,669	657,254	22	11
N.S.Hospital	1,836,501	237,900	885,370	950,000	410,596	342,900	116,963	123,000	2,721,871	1,187,900	2,311,275	845,000	20	7
V.G.	5,022,832	5,006,300	2,981,605	2,814,800	2,796,455	3,110,250	245,798	256,954	8,004,437	7,821,100	5,207,982	4,710,850	21	18
	25,597,698	24,130,000	13,553,289	12,264,800	9,332,125	8,891,376	1,460,604	1,504,557	39,150,987	36,394,800	29,818,862	27,503,424	20	18
														2
Cost Performance minus Bu	1,467,698		1,288,489		440,749		-43,953		2,756,187		2,315,438			0
Budget Over Run as %	0		0		0		0		0		0			
Salaries as % of Gross Total (actual)-19		1												
Expenses as % of Gross Total (actual)-1		0												
Salaries as % of Gross Total (budget)		1												
Expenses as % of Gross Total (budget)		0												
Salaries as % of Gross Total (actual)-19		1												
Expenses as % of Gross Total (actual)-1		0												

Typical Beltline Setup for Small Regional Hospital

(lunch or dinner service)

1. Puts condiments, menu, plate and utensils on tray.

2. Cold beverages: juice, milk, liquid dietary supplements, yoghurt, icecream.

3. Desserts, cookies, crackers, fresh fruit, salad plates, & bread.

4. Entree (full, soft, mash, low salt etc.)

5. Soup, sandwiches.

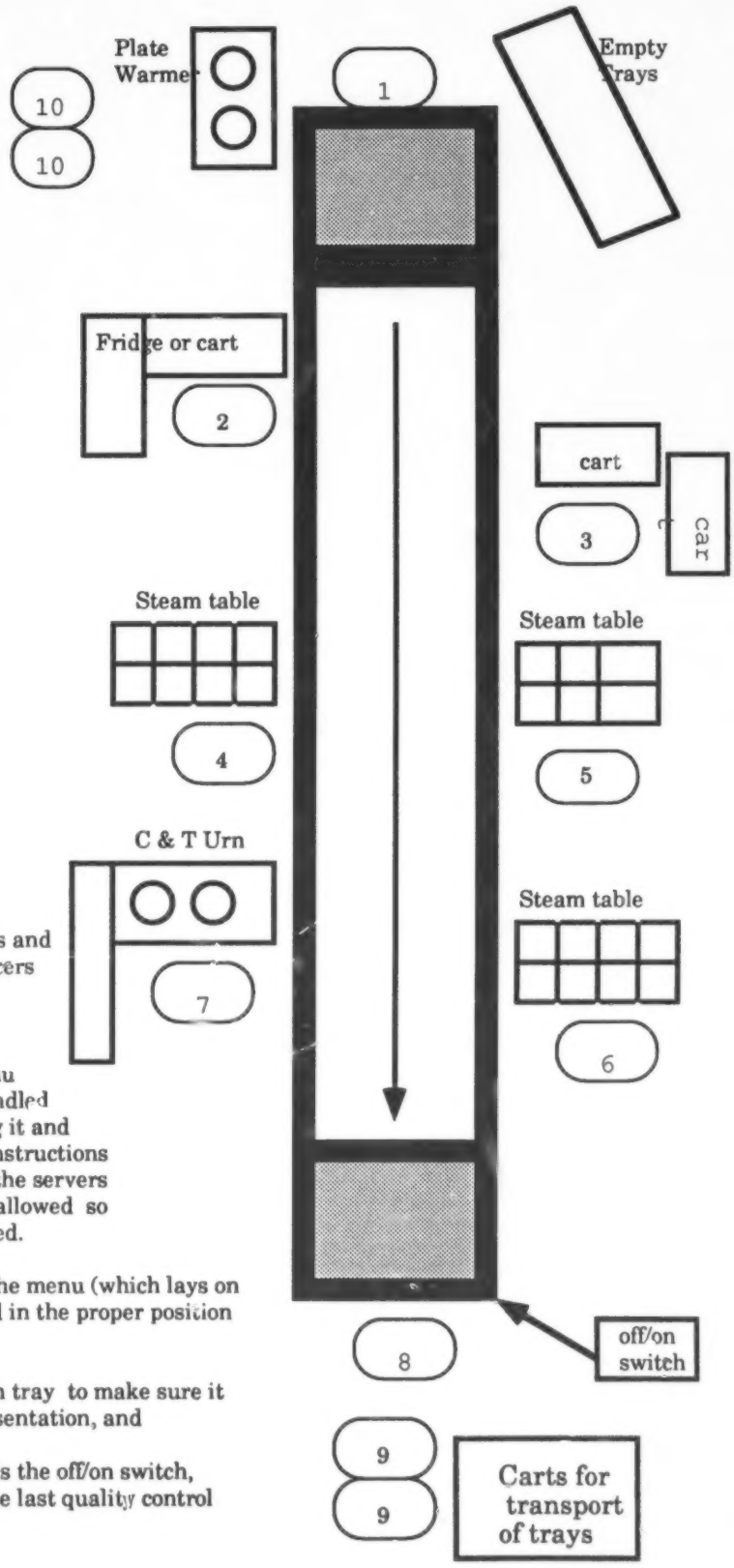
6. Vegetables and potatoes.

7. Hot beverages - tea, coffee.

8. Dietary Supervisor checks tray presentation and accuracy against menu.

9. Porters cover meal and stack in carts for transport to patients..

10. Runners to refill trayvetor line when required.



Beltline Operations

Position 1 and 8 control the beltline.

The dietary worker in position 1 takes one menu from the stacks, which have been arranged and bundled by floor or ward, reads the top menu before placing it and a plate on the beltline. Any special orders and /or instructions are read aloud, so as to provide adequate time for the servers and runners to react. Sometimes the menu is read allowed so that the dietary workers will know what is required.

Each of the people in positions 2 thru 7 reads the menu (which lays on the tray) and places the appropriate portion of food in the proper position on the tray.

The trayline supervisor (position 8) checks each tray to make sure it is complete, accurate,and that the portion size, presentation, and temperature
are within acceptable standards. Position 8 controls the off/on switch, and the variable speed of the belt. This person is the last quality control person.

Construction Related Problems at the South Shore Regional
Photographs are numbered in the following pattern:

1	2
3	4
5	6

1. Dishroom with door to cafeteria in the back right corner, clean dish racks in right foreground, clean take off for dishwashing machine in left foreground, and soiled dish return and sort area in left background. Note lack of space in this area. Clean and soiled dishes must cross over at this spot.

2. Picture taken from loading end of dishwashing machine. Photograph shows cramped space and highlights dysfunctional automatic tray feed. The turning circle for trays is too tight for the trays to ever automatically feed.

3. Grease trap located at feed end of dishwashing machine. Note that it has been installed after the dishwashing machine and the floor (torn up to install grease machine) has not been repaired.

4. Cafeteria drop off shelves for soiled dishes. The other side of the door (photo 1) to the dishroom is at the left. Note soiled dishes piled on table due to limitation of racking.

5. Bake area for the kitchen. Note the door in the top-middle right. This is the only door from the kitchen to the cafeteria. All traffic to the cafeteria passes by the bakers oven and through this 3 foot space.

6 Bank of walk in fridges and freezers. The threshold of each doorway for these fridges is raised approximately 3 inches making proper cleaning of the fridges difficult.